



# Looking under the tinfoil hat: Clarifying the personological and psychopathological correlates of conspiracy beliefs

Shauna M. Bowes<sup>1</sup> | Thomas H. Costello<sup>1</sup> | Winkie Ma<sup>1</sup> | Scott O. Lilienfeld<sup>1,2</sup>

<sup>1</sup>Department of Psychology, Emory University, Atlanta, GA, USA

<sup>2</sup>University of Melbourne, Parkville, VIC, Australia

## Correspondence

Shauna M. Bowes, Department of Psychology, Emory University, 36 Eagle Row, Atlanta, GA 30322, USA.  
Email: shauna.m.bowes@gmail.com

## Abstract

**Objective:** We sought to replicate and extend provisional research on the personological correlates of conspiracy beliefs by examining their associations with abnormal- and normal-range personality domain-level traits and, for the first time, lower-order personality facets; we also examined internalizing symptoms.

**Method:** The study comprised four samples of community and student participants ( $N_{\text{total}} = 1,927$ ), and examined the cross-sectional relations between self-reported conspiratorial ideation and measures of (a) the six-factor model of general personality, (b) intellectual humility (IH), (c) traits relevant to certain personality disorder features (narcissism, psychopathy, disinhibition), and (d) internalizing symptoms (depression, anxiety, anger).

**Results:** Agreeableness and conscientiousness were significant, albeit modest, negative correlates of conspiracy beliefs, although other general personality dimensions tended to manifest negligible associations. Significant associations between lower-order personality facets and conspiracy beliefs, not evident at the domain level, emerged. Indices of IH were significant negative correlates. Conspiracy beliefs were also associated with a range of personality disorder features and internalizing symptoms.

**Conclusions:** Our results suggest that the nonclinical individual prone to conspiratorial ideation is somewhat likely to display a complex mixture of traits including distress, immodesty, impulsivity, and negative affect. Future research should investigate potential multiplicative relations among personological variables in predicting conspiracy beliefs.

## KEYWORDS

conspiracy beliefs, conspiratorial ideation, internalizing, personality, personality disorders

## 1 | INTRODUCTION

Conspiratorial ideation is pervasive, perhaps universal (Oliver & Wood, 2014; Uscinski & Parent, 2014). Nevertheless, people are not all equally susceptible to conspiracy theories. Personality traits, which bear rich associations with our attitudes and beliefs about the world (Duckitt & Sibley, 2010), may be important correlates of conspiracy beliefs. Still, there

are few contemporary accounts of the links between personality and conspiracy beliefs. In two recent reviews on the psychology of conspiracy theories, personality traits went unmentioned (Douglas, Sutton, & Cichocka, 2017; van Prooijen & Douglas, 2018). The large-scale, although not wholesale (Goreis & Voracek, 2019), neglect of the potential personological correlates of conspiratorial ideation may stem in part from two longstanding notions that are contradictory: namely, that such beliefs are (a) inherently psychopathological, and

therefore, fall outside of the normal-range personality domain or, alternatively, (b) are “too normal” and apply almost equally to everyone, thereby rendering investigations of individual difference correlates essentially moot. As we will demonstrate, neither of these assumptions withstands careful empirical scrutiny.

Research examining the associations between general personality and conspiracy beliefs is provisional and mixed (Goreis & Voracek, 2019; Wood & Douglas, 2019). Still, virtually all of this work has focused exclusively on domain-level personality traits, with scant consideration of more nuanced, facet-level traits. Thus, it remains unclear whether and how general personality traits are related to conspiracy beliefs. In contrast, research provides at least some support for the suppositions that conspiracy beliefs are associated with maladaptive personality traits, such as paranoia and schizotypy (e.g., Barron et al., 2018; Oliver & Wood, 2014), and internalizing psychopathology, such as depression and anxiety (e.g., Bogart, Wagner, Galvan, & Banks, 2010; Bruder, Haffke, Neave, Nouripannah, & Imhoff, 2013).

In the present set of studies, we sought to build on and extend the nascent and largely inconsistent body of research on personality and conspiracy beliefs by investigating the conspiracy theory correlates of normal and abnormal personality traits. We examined these associations across four samples drawn from (a) community and (b) student populations. Although our research is cross-sectional and necessarily correlational, a better understanding of the personality correlates of conspiracy theories may offer fruitful insights into the potential causal mechanisms of conspiracy belief and clarify several lingering ambiguities in the literature.

## 1.1 | General personality traits and conspiracy beliefs

Because of the ubiquity of conspiratorial ideation, it is important to consider normal-range personality traits in examinations of conspiracy beliefs and not assume that conspiracy beliefs are germane only to individuals in extreme (fringe) groups. Yet, the degree to which self-reported general personality (e.g., Five Factor Model; FFM) is associated with conspiracy beliefs remains opaque (Wood & Douglas, 2019). Most studies suggest that extraversion, conscientiousness, and neuroticism are negligibly associated with conspiracy beliefs, but, for reasons that are unclear (e.g., random error or substantive differences owing to undetected moderators), the directions of these correlations vary across studies (e.g., Orosz et al., 2016; Stojanov & Halberstadt, 2019). Research examining the associations between agreeableness and openness, on the one hand, and conspiracy beliefs, on the other hand, yields a somewhat more consistent picture. Agreeableness tends to manifest small negative associations

with conspiracy beliefs (Brotherton, French, & Pickering, 2013; Swami, Tran, et al., 2016), whereas openness tends to manifest small positive associations (Imhoff & Bruder, 2014; Swami et al., 2012). Still, these correlations are not invariably statistically significant across studies, and other work has revealed associations in the opposite directions (Galliford & Furnham, 2017; Orosz et al., 2016; Wood & Gray, 2019).

Only one published study (Jolley, Douglas, Leite, & Schrader, 2019) has examined the associations between conspiracy beliefs and the HEXACO model of personality, which includes five dimensions that correspond with, but are not isomorphic to, the standard FFM domains and a sixth honesty–humility dimension (Lee & Ashton, 2018). More specifically, self-report measures of the FFM assess neuroticism and agreeableness, whereas the HEXACO assesses these traits spread across three dimensions, namely honesty–humility, agreeableness, and emotionality (Ashton, Lee & de Vries, 2014). Jolley and colleagues (2019) found that conspiracy beliefs were negatively associated with honesty–humility, but nonsignificantly related to other HEXACO traits.

To clarify inconsistencies in the literature linking personality to conspiracy beliefs, Goreis and Voracek (2019) meta-analyzed the associations between FFM traits and such beliefs ( $k = 96$ ,  $N = 12,086$ ). Perhaps surprisingly, their results revealed no significant associations between general personality and conspiracy beliefs ( $r$ s ranged from  $-.02$  [agreeableness] to  $.03$  [neuroticism]). Nevertheless, all published research examining the relations between conspiracy beliefs and general personality has relied on domain-level personality trait dimensions and has not considered more nuanced, facet-level traits. Thus, potentially important differences between facet-level traits and conspiracy beliefs may be obscured when aggregated into domain-level scores, a broader problem that pervades much of personality and psychopathology research (Smith, McCarthy, & Zapolski, 2009). For instance, trait openness reflects at least two separable facets, namely imagination (e.g., aesthetic appreciation) and intellect (e.g., inquisitiveness; DeYoung, Grazioplene, & Peterson, 2012). Such results raise the intriguing possibility that self-reported personality facets are differentially associated with conspiracy beliefs.

In addition, a potentially overlooked dispositional correlate of conspiracy beliefs is intellectual humility (IH), the propensity to be aware of one’s cognitive biases and evaluate the evidentiary bases for one’s beliefs (e.g., Leary et al., 2017). Burgeoning research suggests that IH is modestly related to cognitive ability, including the ability to distinguish between strong and weak forms of evidence in addition to real and fictitious claims (Krumrei-Mancuso, Haggard, LaBouff, & Rowatt, 2019; Leary et al., 2017). IH may be germane to holding certain attitudes and beliefs, as well, including decreased endorsement of anti-vaccination attitudes (Senger & Huynh, 2020). Moreover, IH is negatively associated with narcissism,

raising the possibility that IH reduces risk for holding beliefs with excessive confidence and certainty (Krumrei-Mancuso & Rouse, 2016). Taken together, these results suggest that IH may be associated with reduced conspiracy beliefs. Further, an examination of the associations between conspiracy beliefs and IH should afford us a better understanding of the more granular relations between conspiracy beliefs and humility, as IH may be a variant or lower-order facet of general humility (Van Tongeren, Davis, Hook, & Witvliet, 2019).

## 1.2 | Personality disorder traits, internalizing psychopathology, and conspiracy beliefs

In contrast with the mixed literature on general personality and conspiracy beliefs, studies indicate that conspiracy beliefs are robustly associated with a range of personality disorder traits. For instance, Swami, Tran, and colleagues (2016) examined the associations between dimensional personality disorder traits and conspiracy beliefs, finding that all dimensions of the *Personality Inventory for DSM-5* (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2013), a self-report measure of personality pathology based on the DSM-5 Section III alternative model of personality disorders, manifested medium to large positive associations with conspiracy beliefs. Characteristics linked to certain personality disorders and other clinical conditions, such as paranoia, have long played a role in theoretical accounts of conspiratorial ideation (e.g., Adorno, Frenkel-Brunswik, Levinson, 1950; Hofstadter, 1964).

Although most individuals find it more comforting to attribute their failures to other persons or events than to themselves, such a propensity to externalize blame may be especially pronounced among narcissistic individuals (Miller & Campbell, 2010). Hence, narcissism may be one trait that predisposes individuals to adopt conspiracy beliefs (Cichocka, Marchlewska, & de Zavala, 2016). Preliminary research suggests that narcissism, including both grandiose and vulnerable narcissism, is positively associated with conspiracy beliefs (Cichocka et al., 2016; March & Springer, 2019). Healthy self-esteem, in contrast, manifests small negative associations with conspiracy beliefs (Galliford & Furnham, 2017; Stieger, Gumhalter, Tran, Voracek, & Swami, 2013). Conspiracy beliefs may provide security to narcissistic individuals, as they often afford an explanatory framework for threatening events that externalizes blame. Moreover, narcissistic individuals tend to believe that they are more important than others and deserve to be the center of attention, and these inflated views of their own agency and authoritativeness may contribute to heightened perceptions of others' intentionality (March & Springer, 2019). Heightened self-confidence characteristic of narcissistic individuals may additionally

contribute to them being relatively unlikely to engage in deep reflection regarding their gut hunches (Littrell, Fugelsang, & Risko, 2019).

When considering the associations between conspiracy beliefs and both narcissism and dimensional personality disorder features, it is surprising that only one study (March & Springer, 2019) has examined the associations between conspiracy beliefs and self-reported psychopathic personality (psychopathy). Psychopathy is a condition that overlaps with narcissism and reflects a complex constellation of personality traits, such as disinhibition, callousness, and self-centeredness (Miller, Hyatt, Maples-Keller, Carter, & Lynam, 2017; Watts, Waldman, Smith, Poore, & Lilienfeld, 2017). March and Springer (2019) found that both primary (e.g., manipulativeness) and secondary (e.g., impulsiveness) features of psychopathy manifested large positive associations with conspiracy beliefs. Given that conspiracy beliefs are linked with a range of personality disorder features, it seems possible if not likely that conspiracy belief is associated with antagonism, recklessness, and an inflated sense-of-self more specifically rather than certain global conditions (e.g., psychopathy) *per se*. Dovetailing with these conjectures, conspiracy belief is associated with features of externalizing at large, including increased aggression and propensity for violence (Jolley et al., 2019; Marchlewska, Cichocka, Łozowski, Górska, & Winiewski, 2019).

In addition to features of externalizing, conspiracy beliefs manifest small to large positive associations with self-reported internalizing features. Conspiracy belief is associated with a range of anxiety symptoms, including those comprising state- and trait-anxiety (Leone, Giacomantonio, Williams, & Michetti, 2018), social anxiety (Lantian, Muller, Nurra, & Douglas, 2016), and death anxiety (Stojanov & Halberstadt, 2019). Conspiracy beliefs also tend to manifest small positive associations with total scores on depression inventories (Bogart et al., 2010; Leone et al., 2018). Although the causal relation, if any, between conspiracy beliefs and internalizing is still unclear, conspiracy beliefs may satisfy emotional and existential needs to make sense of negative situations (e.g., Douglas et al., 2019).

## 1.3 | Current studies

We examined the associations between conspiracy beliefs, on the one hand, and self-reported personality traits, both normal and abnormal, IH, and internalizing psychopathology, on the other hand, across four samples comprising (a) community and (b) student participants. We used multiple measures of conspiratorial ideation to reduce the potential influence of mono-operation bias and build in conceptual replication both within and across samples. Our investigation was characterized by two broad aims.

### 1.3.1 | Aim 1. Clarify the domain- and facet-level associations of general personality traits with conspiracy beliefs

We hypothesized that the traditional FFM domains would manifest small correlations with conspiracy beliefs (Goreis & Voracek, 2019). We predicted that conspiracy beliefs would manifest small negative associations with agreeableness but small positive associations with the remaining FFM traits. In addition, we hypothesized that honesty–humility would manifest small to medium negative correlations with conspiracy beliefs (Jolley et al., 2019). Similarly, we hypothesized that IH would manifest small to medium negative associations with conspiracy beliefs. Our analyses regarding the associations between the lower-order facets of general personality and conspiracy beliefs were exploratory.

### 1.3.2 | Aim 2: Elaborate on the associations between maladaptive functioning and conspiracy beliefs

We analyzed the relations between conspiracy beliefs and indices of personality pathology and internalizing features. Regarding personality pathology, we hypothesized that conspiracy beliefs would manifest large positive correlations with PID-5 traits (Swami, Weis, Lay, Barron, & Furnham, 2016). We also assessed narcissism and psychopathy to provide enhanced content coverage of externalizing tendencies and antagonism. We hypothesized that the entitlement/exploitativeness features of narcissism and the disinhibition and meanness features of psychopathy would manifest medium to large positive correlations with conspiracy beliefs (Cichocka et al., 2016; March & Springer, 2019). Our analyses including leadership/authority and boldness were exploratory, as these traits are often related to adaptive outcomes, such as stress immunity and self-esteem (Clarke, Karlov, & Neale, 2015; Latzman et al., 2019). Both externalizing and internalizing features are posited to predispose to conspiracy beliefs (Douglas et al., 2019); hence, we also investigated the associations between internalizing and conspiracy belief. We hypothesized that conspiracy beliefs would manifest small positive associations with depression and anxiety (Bogart et al., 2010; Lantian et al., 2016). In contrast, we hypothesized that self-esteem would be negligibly or negatively correlated with conspiracy beliefs (Swami, 2012). We also included a measure of anger, which reflects both internalizing and externalizing (Tellegen & Waller, 2008). We hypothesized that conspiracy beliefs would manifest small positive associations with anger (Bogart et al., 2010; Leone et al., 2018).

## 2 | METHOD

### 2.1 | Participants

In Samples 1, 3, and 4, participants were recruited from Amazon's Mechanical Turk (MTurk), an online platform through which community members can participate in studies for financial compensation. Research suggests that once screened for quality control problems, data quality from MTurk studies are broadly comparable to those collected from undergraduate samples and other convenience samples (Buhrmester, Talafar, & Gosling, 2018). Nonetheless, there are controversies surrounding the quality of MTurk data (e.g., Chmielewski & Kucker, 2019). To address these data quality concerns, we (a) examined click counts (i.e., must have clicked at least three times on the consent page to advance to the next page of the survey), (b) administered attention checks, and (c) used published metrics to screen out inconsistent and overused responses (e.g., putting "3" for most items, even on reverse-coded items), on the HEXACO PI-R (Barends & de Vries, 2019). There were two attention checks in Samples 1 and 3 that required participants to accurately (a) track an argument and (b) respond to a question and its prompt (e.g., "Was Leonardo da Vinci born before or after 1698? Type either before or after"). In Sample 4, participants completed three attention checks (e.g., answering other than "agree" to an item stating "The sky is often blue"). In Sample 2, participants were undergraduates enrolled in an introductory psychology course at a private university in the southeast. The same procedures were followed to ensure data quality in Sample 2 as in the other samples.

#### 2.1.1 | Sample 1

The final sample ( $N = 527$ ;  $M_{\text{age}} = 38.1$ ,  $SD_{\text{age}} = 11.57$ ) was primarily college-educated (40.0%), female (55.8%), and white (83.7%). The remainder of the sample was African American (11.2%), Hispanic (8.3%), and Other (1.9%). Most participants identified as Democratic (42.7%), followed by Republican (26.4%) and independent (23.0%).

#### 2.1.2 | Sample 2

The final sample ( $N = 327$ ;  $M_{\text{age}} = 19.0$ ,  $SD_{\text{age}} = 1.76$ ) was primarily female (69.1%) and white (53.2%). The remainder of the sample was Asian (33.9%), Hispanic (12.5%), and African American (7.3%). Most participants identified as Democratic (52.0%), followed by not identifying with a political party (21.4%) and independent (16.5%); only a minority identified as Republican (6.5%).



### 2.1.3 | Sample 3

The final sample ( $N = 498$ ;  $M_{\text{age}} = 39.6$ ,  $SD_{\text{age}} = 12.41$ ) was primarily college-educated (38.8%), female (55.8%), and white (81.7%). The remainder of the sample was African American (10.6%), Hispanic (5.2%), and Asian (4.4%). Regarding political identification, most participants identified as Democratic (43.3%), followed by Republican (25.4%) and independent (23.1%).

### 2.1.4 | Sample 4

The final sample ( $N = 479$ ;  $M_{\text{age}} = 40.51$ ,  $SD_{\text{age}} = 12.43$ ) was primarily college-educated (36.6%), female (54.7%), and white (85.5%). The remainder of the sample was African American (8.0%), Hispanic (6.9%), and Asian (2.8%). Most identified as Democratic (44.5%), followed by Republican (26.1%) and independent (23.6 %).

## 2.2 | Materials and procedure

All participants completed an online battery of self-report measures. Internal consistencies are presented in Tables S1–S7.<sup>1</sup>

### 2.2.1 | Conspiratorial ideation

Scholars often parse *specific* from *general* conspiracy theories (Douglas et al., 2019). Measures of specific conspiracy theories present participants with a series of concrete, event-based conspiracies (Swami et al., 2011) or assess a single content domain, such as beliefs about vaccinations (Shapiro, Holding, Perez, Amsel, & Rosberger, 2016). Measures of general conspiracy theories, in contrast, assess belief in decontextualized, nonevent-based conspiracies (Brotherton et al., 2013; Bruder et al., 2013). In the present investigation, we included measures of both general and specific conspiracy theories. In Samples 1 through 3, the *Belief in Conspiracy Theories Inventory* (BCTI; Swami et al., 2011) was administered. The BCTI is a 15-item self-report inventory of belief in specific conspiracies (e.g., “U.S. agencies intentionally created the AIDS epidemic and administered it to Black and gay men in the 1970s”), wherein participants endorse their level of belief via a 1 (*completely false*) to 6 (*completely true*) Likert-type scale. Exploratory factor analyses suggest that the BCTI is unidimensional (Swami, Chamorro-Premuzic, & Furnham, 2010).

In Sample 4, participants completed two self-report measures of conspiratorial thinking: the *Generic Conspiracist Beliefs Scale* (GCBS; Brotherton et al., 2013) and *Vaccine*

*Conspiracy Theories Scale* (VCBS; Shapiro et al., 2016). The GCBS is a 15-item self-report measure of beliefs in general conspiracy theories (e.g., “New and advanced technology which would harm current industry is being suppressed”) that yields a total score in addition to five factor scores. In this study, we used the GCBS total score in all primary analyses (but see Tables S8 and S9 for the correlations between the GCBS subdimensions and study outcomes). Participants indicated the degree to which they agreed with each item on a 1 (*definitely not true*) to 5 (*definitely true*) Likert-type scale. The VCBS is a 7-item self-report measure of belief in vaccine-related conspiracy theories (e.g., “The government is trying to cover up the link between vaccines and autism”), and participants indicated their agreement with each statement on a 1 (*strongly disagree*) to 7 (*strongly agree*) Likert-type scale.

### 2.2.2 | General personality

All participants completed the 100-item version of the *HEXACO Personality Inventory-Revised* (HEXACO PI-R; Lee & Ashton, 2018), which is a self-report measure comprising facet-level scales that converge on six domains. Honesty–Humility comprises four facets: Sincerity, Fairness, Greed Avoidance, and Modesty; Emotionality, which broadly aligns with neuroticism from the FFM, comprises four facets: Fearfulness, Anxiety, Dependence, and Sentimentality; Extraversion comprises four facets: Social Self-Esteem, Social Boldness, Sociability, and Liveliness; Agreeableness comprises four facets: Forgiveness, Gentleness, Flexibility, and Patience; Conscientiousness comprises four facets: Organization, Diligence, Perfectionism, and Prudence; and Openness comprises four facets: Aesthetic Appreciation, Inquisitiveness, Creativity, and Unconventionality. The HEXACO PI-R also contains an interstitial scale, altruism, that measures tendencies to be warm and sympathetic toward others. To quantify potential acquiescence/counter-acquiescence response bias, we summed all items on the HEXACO without reverse-coding items and used this variable as a covariate in secondary analyses.

### 2.2.3 | Intellectual humility

In Samples 1 through 3, participants completed two self-report measures of IH, the *Leary General Intellectual Humility Scale* (LIHS; Leary et al., 2017) and *Comprehensive Intellectual Humility Scale* (CIHS; Krumrei-Mancuso & Rouse, 2016). The LIHS is a 6-item measure that emphasizes the intrapersonal rather than interpersonal features of IH (e.g., “I reconsider my opinions when presented with new evidence”). Participants rated their agreement with

each item on a 1 (*strongly disagree*) to 5 (*strongly agree*) Likert-type scale. The CIHS is a 22-item measure that encompasses both intrapersonal and interpersonal features of this construct (e.g., “I can respect others, even if I disagree with them in important ways”; “My ideas are usually better than other people’s ideas [reversed]”). Factor analyses of the CIHS has revealed four dimensions: Independence of Intellect and Ego, Openness to Revising One’s Viewpoints, Respect for Others’ Viewpoints, and Lack of Intellectual Overconfidence. Participants rated their agreement with each item on a 1 (*strongly disagree*) to 5 (*strongly agree*) Likert-type scale. Factor analyses suggest that these four subdimensions load onto a second-order factor of general IH (Krumrei-Mancuso & Rouse, 2016).

### 2.2.4 | Personality disorder traits

In Samples 1, 2, and 4, participants completed *The Personality Inventory for DSM-5-Brief Form* (PID-5-BF; Krueger et al., 2013), a 25-item self-report measure that aligns with the alternative model of personality disorders in Section III of the *Diagnostic and Statistical Manual-5* (American Psychiatric Association, 2013). The PID-5 assesses five personality dimensions: Negative Affect, Detachment, Antagonism, Disinhibition, and Psychoticism. Participants rated how characteristic certain emotional states and behaviors are of them on a 0 (*very false or often false*) to 3 (*very true or often true*) Likert-type scale. In Samples 1 through 3, participants completed the *Narcissistic Personality Inventory-13* (NPI-13; Gentile et al., 2013), an abbreviated version of the 40-item *Narcissistic Personality Inventory* (Raskin & Terry, 1988). The NPI-13 yields scores on three dimensions: Leadership/Authority, Grandiose/Exhibitionism, and Entitlement/Exploitativeness. The NPI-13 comprises 13 pairs of statements, and participants select the statement with which they most agree (e.g., “I find it easy to manipulate people” or “I don’t like it when I find myself manipulating people”).

In Samples 1 through 3, the triarchic psychopathy dimensions, namely boldness, disinhibition, and meanness, were extracted from the HEXACO PI-R using published formulas (Marcus et al., 2019). In Sample 4, the *Psychopathic Personality Inventory-Revised-40* (PPI-R-40; Eisenbarth, Lilienfeld, & Yarkoni, 2015) was administered, a short-form version of the 154-item PPI-R (Lilienfeld & Widows, 2005). The PPI-R-40 yields three dimensions that closely align with the triarchic psychopathy traits: Fearless Dominance (which corresponds with boldness), Self-Centered Impulsivity (which corresponds with disinhibition), and coldheartedness (which corresponds with Meanness). Although Coldheartedness overlaps

with Meanness, it more closely emphasizes affective detachment, whereas Meanness more closely emphasizes antagonism.

### 2.2.5 | Psychopathology and self-esteem

In Samples 1 and 2, participants completed three brief report versions of the *Patient-Reported Outcomes Measurement Information System Scales* for Anxiety, Depression, and Anger (PROMIS; Pilkonis et al., 2011). The Anxiety PROMIS scale is an 8-item measure of fearfulness, stress sensitivity, and tension. The Depression PROMIS scale is an 8-item measure of worthlessness, low mood, and hopelessness. The Anger PROMIS scale is a 5-item measure of irritability and emotion dysregulation. In Samples 1 and 2, participants also completed a 10-item self-report measure of self-esteem, namely the *Rosenberg Self-Esteem Scale* (Rosenberg, 1979).

## 3 | RESULTS

Effect sizes were interpreted in accordance with Gignac and Szodorai’s (2016) effect size guidelines for individual differences researchers. We focus our exposition on effect sizes rather than on statistical significance. Results from individual samples are presented in Tables 1 and 2. For a description of the results in each sample, see Supporting Information 1. Intercorrelations among variables are presented in Tables S1–S7.

### 3.1 | Descriptive statistics

Distributions of the constructs in each sample are presented in Figures S1–S4. The means and standard deviations for measures of all constructs are presented in Tables S1–S7. Conspiracy beliefs, personality disorder traits, and indices of psychopathology tended to be positively skewed, whereas general personality traits and IH tended to be negatively skewed. In addition, regarding conspiratorial ideation, approximately 60% of participants in each sample yielded scores on the conspiracy belief measures that were less than half of the theoretical maxima on said measures. In Samples 1 through 3, no participant yielded a maximum score on the BCTI (sample maxima ranged from 70 to 88). Nevertheless, skewness statistics for each construct did not exceed an absolute value of 2 across samples, suggesting that skewness probably did not substantially influence the results. Kurtosis statistics exceeded an absolute value of 2 for the following constructs only: Entitlement/Exploitativeness in Sample 3 (kurtosis = 2.03), the LIHS in Sample 2 (kurtosis = 2.72),

**TABLE 1** Correlations between general personality traits and conspiracy beliefs

	Sample 1	Sample 2	Sample 3	Sample 4 - GCBS	Sample 4 - VCBS
<b>1. Honesty–humility</b>	<b>–.19<sup>a</sup></b>	–.05 <sup>a</sup>	–.12	<b>–.20</b>	–.07
2. Sincerity	.00	–.01	.00	–.09	–.02
3. Fairness	<b>–.21</b>	–.09	<b>–.16</b>	<b>–.25</b>	–.06
4. Greed avoidance	–.09*	.00	–.06	–.08	–.03
5. Modesty	<b>–.23</b>	–.05	–.14	–.15	–.12
<b>6. Emotionality</b>	–.07	–.05	.02	.05	.01
7. Fearfulness	–.14	–.01	–.10*	.07	.01
8. Anxiety	–.05	–.03	.05	.14	.03
9. Dependence	–.01	–.07	.04	–.05	–.00
10. Sentimentality	–.01	–.05	.05	–.05	–.02
<b>11. Extraversion</b>	.00	–.06	.04	<b>–.24</b>	–.09 <sup>a</sup>
12. Social self-est.	–.10*	–.11*	–.01	<b>–.24</b>	–.13
13. Social boldness	.09	–.02	.05	<b>–.16</b>	–.06
14. Sociability	.04	–.06	.06	–.16	–.04
15. Liveliness	–.06	–.02	.02	<b>–.21</b>	–.07
<b>16. Agreeableness</b>	–.15	–.05	–.09	<b>–.18</b>	–.04
17. Forgivingness	–.04	–.02	–.01	–.14	.00
18. Gentleness	–.07	–.01	–.04	–.11*	.01
19. Flexibility	<b>–.19</b>	–.13*	–.09*	–.12*	–.05
20. Patience	–.15	–.03	–.13	<b>–.19</b>	–.09
<b>21. Conscientiousness</b>	<b>–.17</b>	–.08	–.08	<b>–.19<sup>a</sup></b>	<b>–.21<sup>a</sup></b>
22. Organization	–.10*	–.02	–.05	–.11*	–.09
23. Diligence	<b>–.17</b>	–.10*	–.02	<b>–.17</b>	<b>–.19</b>
24. Perfectionism	–.07	–.02	.02	–.07	–.12
25. Prudence	<b>–.20</b>	–.09	<b>–.19</b>	<b>–.26</b>	<b>–.28</b>
<b>26. Openness</b>	.00 <sup>a</sup>	.07	.03	–.07	<b>–.17</b>
27. Aesthetic app.	.02	.13	.00	–.02	–.07
28. Inquisitive	–.12	–.02	–.07	–.13	<b>–.21</b>
29. Creativity	.06	.03	.06	–.10*	–.13
30. Unconventionality	.03	.04	.12	.01	–.15
<b>31. Altruism</b>	<b>–.19<sup>a</sup></b>	–.09	–.04	<b>–.19</b>	–.11*

Note: Bold is  $p < .001$ , italicized is  $p < .01$ , and \* is  $p < .05$ .

Abbreviations: GCBS, Generic Conspiracist Belief Scale; VCBS, Vaccine Conspiracy Belief Scale.

<sup>a</sup>Denotes that the association was significantly moderated by age.

CIHS Openness in Sample 2 (kurtosis = 2.58), and CIHS Respect in Sample 2 (kurtosis = 4.27).<sup>2</sup>

### 3.2 | Mini meta-analytic summary

To analytically synthesize the results across samples (Table 3; Figures S5 and S6), we conducted a “mini” meta-analysis (Goh, Hall, & Rosenthal, 2016) using the random-effects model ( $N = 1,927$ ;  $k = 4$ ). Because there were two measures of conspiracy beliefs in Sample 4, the effect sizes

were averaged across them so as to not artificially inflate confidence in our estimates. All analyses were conducted in R using the *metafor* package (Viechtbauer, 2010).<sup>3</sup>

Across samples, honesty–humility was a small but significant negative correlate of conspiracy beliefs ( $r = -.13$ ). Modesty and fairness manifested medium negative correlations with conspiracy beliefs (modesty  $r = -.14$ ; fairness  $r = -.15$ ). Greed avoidance also manifested a significant, albeit small, and negative correlation with conspiracy beliefs ( $r = -.05$ ). Sincerity was not significantly associated with conspiracy beliefs ( $r = -.02$ ). In contrast to

	Sample 1	Sample 2	Sample 3	Sample 4 - GCBS	Sample 4 - VCBS
<b>Intellectual humility</b>					
1. CIHS total	-.23	-.17	-.09	–	–
2. CIHS Ind. Int. Ego	-.18	-.13	-.07	–	–
3. CIHS Openness	-.11*	-.10*	-.05	–	–
4. CIHS respect	-.05	-.17	.03	–	–
5. CIHS Lack Int. Overconf.	-.27	-.06	-.16	–	–
6. LIHS	-.09** <sup>a</sup>	-.06	.01	–	–
<b>NPI</b>					
1. Leadership/ authority	.25	.04	.19	–	–
2. Entitlement/ exploitativeness	.16	.12*	.17	–	–
3. Grandiose/ exhibitionism	.17	.06	.22	–	–
<b>HEXACO psychopathy</b>					
4. Boldness	.08	-.04 <sup>b</sup>	.06	–	–
5. Disinhibition	.29	.12*	.22	–	–
6. Meanness	.14 <sup>a</sup>	.08	.02 <sup>b</sup>	–	–
<b>PPI-R</b>					
7. Fearless dominance	–	–	–	-.06	-.02 <sup>a</sup>
8. Self-centered impulsivity	–	–	–	.35	.24
9. Coldheartedness	–	–	–	.09*	.01
<b>PID-5</b>					
10. Negative affect	.18	.07	–	.21 <sup>b</sup>	.10*
11. Detachment	.22	.09	–	.27	.20
12. Antagonism	.33	.09	–	.22	.15
13. Disinhibition	.31	.05	–	.23	.19
14. Psychoticism	.35	.14	–	.31	.23
<b>Internalizing</b>					
15. Self-esteem	-.02	.04 <sup>a</sup>	–	–	–
16. Depression	.16	.17	–	–	–
17. Anxiety	.19	.12*	–	–	–
18. Anger	.26	.07	–	–	–

Note: Bold is  $p < .001$ , italicized is  $p < .01$ , and \* is  $p < .05$ .

Abbreviations: CIHS, Comprehensive Intellectual Humility Scale; GCBS, Generic Conspiracist Belief Scale; Ind. Int. Ego, Independence of Intellect and Ego; Lack Int. Overconf., Lack of Intellectual Overconfidence; LIHS, Leary Intellectual Humility Scale; NPI, Narcissistic Personality Inventory; Openness, Openness to Revising One's Viewpoints; PID-5, Personality Inventory for DSM-5; PPI-R, Psychopathic Personality Inventory-Revised; Respect, Respect for Others' Viewpoints; VCBS, Vaccine Conspiracy Belief Scale.

<sup>a</sup>Denotes that the association was significantly moderated by age.

<sup>b</sup>Denotes that the association was significantly moderated by gender.

**TABLE 2** Correlations between (a) intellectual humility, personality disorder traits, and internalizing and (b) conspiracy beliefs

honesty–humility, domain-level emotionality ( $r = -.02$ ) and its facets ( $r$ s ranged from  $-.05$  [fearfulness] to  $.01$



**TABLE 3** Mini meta-analytic estimates of the associations between conspiracy beliefs and study variables across samples

Constructs	<i>r</i>	<i>SE</i>	95% CI	Constructs	<i>r</i>	<i>SE</i>	95% CI
<b>1. Honesty–humility</b>	<b>−.13</b>	.03	−.18, −.07	<b>Intellectual humility</b>			
2. Sincerity	−.02	.02	−.06, .03	32. CIHS Total	<b>−.17</b>	.04	−.25, −.08
3. Fairness	<b>−.15</b>	.02	−.21, −.11	33. CIHS Independence of Intellect and Ego	<b>−.13</b>	.03	−.19, −.06
4. Greed avoidance	−.05*	.02	−.10, −.01	34. CIHS Openness to Revising One's Viewpoints	−.09	.03	−.14, −.04
5. Modesty	<b>−.14</b>	.04	−.22, −.07	35. CIHS Respect for Others' Viewpoints	−.06	.06	−.18, .05
<b>6. Emotionality</b>	−.02	.03	−.07, .03	36. CIHS Lack Intellectual Overconfidence	−.17	.06	−.20, −.05
7. Fearfulness	−.05	.04	−.14, .03	37. LIHS	−.04	.03	−.11, .01
8. Anxiety	.01	.03	−.05, .08	<b>NPI</b>			
9. Dependence	−.01	.02	−.06, .03	38. Leadership/Authority	.16	.06	.04, .29
10. Sentimentality	−.01	.02	−.05, .03	39. Entitlement/Exploitativeness	<b>.15</b>	.03	.10, .20
<b>11. Extraversion</b>	−.05	.04	−.13, .04	40. Grandiose/Exhibitionism	.15	.05	.06, .25
12. Social self-esteem	−.10	.04	−.17, −.03	<b>Psychopathy</b>			
13. Social boldness	.00	.04	−.08, .09	41. Boldness/Fearless Dominance	.02	.03	−.05, .08
14. Sociability	−.02	.04	−.10, .06	42. Disinhibition/Self-centered Impulsivity	<b>.24</b>	.04	.16, .32
15. Liveliness	−.05	.03	−.12, .02	43. Meanness/Coldheartedness	<b>.09</b>	.02	.05, .14
<b>16. Agreeableness</b>	<b>−.10</b>	.02	−.15, −.06	<b>PID-5</b>			
17. Forgivingness	−.03	.02	−.08, .01	47. Negative Affect	<b>.14</b>	.03	.07, .20
18. Gentleness	−.04	.02	−.09, .00	48. Detachment	<b>.19</b>	.05	.09, .28
19. Flexibility	<b>−.13</b>	.03	−.17, −.06	49. Antagonism	.21	.07	.06, .35
20. Patience	<b>−.12</b>	.02	−.17, −.08	50. Disinhibition	.20*	.08	.04, .35
<b>21. Conscientiousness</b>	<b>−.13</b>	.03	−.20, −.07	51. Psychoticism	<b>.26</b>	.07	.14, .39
22. Organization	−.07	.02	−.11, −.02	<b>Internalizing</b>			
23. Diligence	−.12	.04	−.19, −.04	52. Self-esteem	.01	.03	−.06, .07
24. Perfectionism	−.04	.03	−.09, .01	53. Depression	<b>.17</b>	.03	.10, .23
25. Prudence	<b>−.19</b>	.04	−.27, −.12	54. Anxiety	<b>.16</b>	.04	.09, .23
<b>26. Openness</b>	−.01	.04	−.09, .07	55. Anger	.16	.10	−.02, .36
27. Aesthetic appreciation	.02	.04	−.05, .10	–	–	–	–
28. Inquisitiveness	−.10	.03	−.16, −.03	–	–	–	–
29. Creativity	.01	.04	−.07, .09	–	–	–	–
30. Unconventionality	.03	.04	−.05, .11	–	–	–	–
<b>31. Altruism</b>	<b>−.12</b>	.03	−.19, −.05	–	–	–	–

Note: Bold is  $p < .001$ , italicized is  $p < .01$ , and \* is  $p < .05$ .

Abbreviations: CIHS, Comprehensive Intellectual Humility Scale; LIHS, Leary Intellectual Humility Scale; NPI, Narcissistic Personality Inventory; PID-5, Personality Inventory for DSM-5.

[anxiousness]) were not significantly associated with conspiracy beliefs. Extraversion ( $r = -.05$ ) and most of its facets ( $r$ s ranged from  $-.05$  [liveliness] to  $.00$  [social boldness]) were also not significantly associated with conspiracy beliefs. Social self-esteem, however, manifested a small but significant negative association with conspiracy beliefs ( $r = -.10$ ).

Agreeableness was also a small but significant negative correlate of conspiracy beliefs at the domain level ( $r = -.10$ ), and two of its facets, namely flexibility and patience, too manifested significant, negative correlations (flexibility  $r = -.13$ ; patience  $r = -.12$ ). In contrast, forgivingness and gentleness were negligibly associated (forgivingness  $r = -.04$ ; gentleness  $r = -.04$ ). In addition, conscientiousness was

significantly, negatively correlated with conspiracy beliefs, although the correlation was small ( $r = -.13$ ). Organization, diligence, and prudence also manifested significant and negative correlations with conspiracy beliefs that were small to medium ( $r$ s ranged from  $-.07$  [organization] to  $-.19$  [prudence]). Perfectionism, however, was negligibly associated with conspiracy beliefs ( $r = -.04$ ). Domain-level openness was negligibly associated with conspiracy beliefs ( $r = -.01$ ), and most of its facets were also negligibly associated ( $r$ s ranged from  $.01$  [creativity] to  $.02$  [aesthetic appreciation]). Inquisitiveness, however, manifested a small but significant negative correlation with conspiracy beliefs ( $r = -.10$ ). Finally, altruism was weakly negatively associated with conspiracy beliefs, and the relation was significant ( $r = -.12$ ).

Consistent with the association between honesty–humility and conspiracy beliefs, the CIHS manifested a moderate, negative correlation with conspiracy beliefs (CIHS  $r = -.17$ ;  $N = 1,448$ ,  $k = 3$ ). The LIHS, however, was negligibly associated ( $r = -.04$ ). Most CIHS subdimensions also manifested significant negative correlations with conspiracy beliefs ( $r$ s ranged from  $-.17$  [Lack of Intellectual Overconfidence] to  $-.09$  [Openness to Revising One's Views]). Respect for Others' Viewpoints, however, was negligibly correlated ( $r = -.06$ ).

All PID-5 dimensions were consistent positive correlates of conspiracy beliefs ( $r$ s ranged from  $.14$  [negative affect] to  $.26$  [psychoticism];  $N = 1,429$ ,  $k = 3$ ).<sup>4</sup> In addition, narcissism dimensions manifested small positive correlations with conspiracy beliefs ( $r$ s ranged from  $.15$  [grandiose/exhibitionism & entitlement/exploitativeness] to  $.16$  [leadership/authority];  $N = 1,448$ ,  $k = 3$ ). Meanness and disinhibition psychopathy traits also manifested small to medium positive correlations with conspiracy beliefs (meanness  $r = .09$ ; disinhibition  $r = .24$ ). Boldness, however, was negligibly associated with conspiracy beliefs ( $r = .02$ ). Self-esteem and anger were also negligibly associated with conspiracy beliefs (self-esteem  $r = -.01$ ; anger  $r = .16$ ;  $N = 950$ ,  $k = 2$ ). Depression and anxiety manifested small, albeit significant, positive correlations with conspiracy beliefs (depression  $r = .17$ ; anxiety  $r = .16$ ;  $N = 950$ ,  $k = 2$ ).

### 3.3 | Relative importance analyses

To clarify the proportionate contribution of each individual difference construct relative to other constructs in statistically predicting conspiratorial ideation, we used relative importance, or relative weights, analyses. Relative importance analyses decompose the total variance into the proportionate contribution of the predictor variables (Tonidandel & LeBreton, 2011). Relative importance analyses were conducted using RWA-Web (Tonidandel & LeBreton, 2015) based on the raw data for each sample. The raw and rescaled

(i.e., the percentage of the variance attributable to each predictor variable in the model) weights in addition to inferential statistics (generated based on 10,000 bootstrapped samples) are presented in Table S8.

HEXACO dimensions collectively accounted for an average 5% the variance in conspiracy beliefs. Across samples, specific HEXACO dimensions accounted for an average 6% (emotionality) to 29% (conscientiousness) of the variance in conspiracy beliefs. IH dimensions accounted for an average 7% of the variance in conspiracy beliefs. Specific IH dimensions accounted for an average 6% (LIHS) to 40% (CIHS Lack of Intellectual Overconfidence) of the variance in conspiracy beliefs. Regarding abnormal personality features, PID-5 dimensions collectively accounted for an average 9% of the variance in conspiratorial ideation. Across samples, specific PID-5 dimensions accounted for an average 8% (negative affect) to 38% (psychoticism) of the variance in conspiratorial ideation. Psychopathy traits collectively accounted for an average 7% of the variance in conspiratorial ideation. Across samples, psychopathy dimensions accounted for an average 8% (boldness) to 83% (disinhibition) of the variance in conspiracy beliefs. Narcissism traits collectively accounted for an average 4% of the variance in conspiracy beliefs. Across, samples specific narcissism dimensions accounted for an average 27% (grandiose/exhibitionism) to 42% (entitlement/exploitativeness) of the variance in conspiracy beliefs. Internalizing symptoms collectively accounted for an average 5% of the variance in conspiracy beliefs. Across samples, features of internalizing accounted for an average 3% (self-esteem, reversed) to 41% (depression) of the variance in conspiracy beliefs.

## 4 | DISCUSSION

The present investigation examined the multifarious relations among conspiracy beliefs and self-reported individual difference variables of relevance, including normal and abnormal-range personality traits, IH, and internalizing features. Results suggested a nuanced and complex picture. Consistent with the meta-analysis of Goreis and Voracek (2019), the relations between FFM domains and conspiracy beliefs were small and often negligible. Conscientiousness and agreeableness were significant, albeit weak, negative correlates of conspiracy beliefs; other FFM dimensions were negligible correlates. Honesty–humility was a consistent negative, albeit weak, correlate of conspiracy beliefs. Relative importance analyses revealed that honesty–humility and conscientiousness were comparatively robust correlates of conspiracy beliefs, as they accounted for an average 50% of the variance in conspiracy beliefs relative to the other HEXACO dimensions. In addition, trait altruism and conspiracy beliefs were weakly, but consistently, negatively associated. We

also found significant associations between certain personality facets and conspiracy beliefs that were obscured when combined into a global score. Regarding extraversion, social self-esteem was weakly, negatively correlated with conspiracy beliefs. Regarding openness, inquisitiveness was weakly, negatively correlated with conspiracy beliefs.

Burrowing deeper into the associations between humility and conspiracy beliefs, we found that IH, both at the dimension- and subdimension-level, manifested small to medium negative correlations with conspiracy beliefs. The IH subdimension of respect for others' viewpoints, however, was negligibly associated, perhaps suggesting that the interpersonal aspects of IH are less robust negative correlates of conspiracy beliefs compared with its metacognitive aspects. The tendency to lack intellectual confidence accounted for approximately 40% of the variance in conspiracy beliefs relative to other IH dimensions and measures.

In line with previous research (Swami, Weis, et al., 2016), PID-5 traits manifested fairly robust positive associations with conspiracy beliefs. These results may be puzzling in light of the small relations between general personality and conspiracy beliefs. Some contend "that the PID-5 can be understood as a measure of the FFM" (Griffin & Samuel, 2014, p. 4), and PID-5 dimensions tend to manifest large convergent correlations with their corresponding FFM dimensions (Griffin & Samuel, 2014). Nevertheless, compared with most measures of normal-range personality, the PID-5 may detect extremes of general personality traits that are germane to decreased satisfaction with and quality of life, impaired social and work-related functioning, and greater interpersonal distress (Simms & Calabrese, 2016). Thus, the maladaptive variants of general personality may be more closely linked to conspiracy beliefs than are normal-range traits, perhaps because they are more imbued with, or least reflective of, maladjustment.

It is also possible, however, that the moderate-to-large correlations between certain personality disorder dimensions (e.g., PID-5 psychoticism) and conspiracy beliefs in part reflect method covariance, perhaps arising from covarying response styles. For example, participants who score highly on both PID-5 psychoticism and conspiracy beliefs might be inclined to endorse a large number of low base-rate or socially undesirable items regardless of their specific content. This methodological artifact may be relatively independent of genuine substantive overlap across measures, as "respondents may tend to prefer or avoid particular categories, regardless of the levels of the trait being measured" (Park & Wu, 2019, p. 912; see also Berg, 1959, for a discussion of the deviation hypothesis). Scores on the PID-5 and conspiracy belief measures tended to be positively skewed, for instance, with overlapping distributions. Moreover, the correlations between conspiracy beliefs and the PID-5 scales were smaller in Sample 2 compared with other samples, and

the distributions of both conspiracy beliefs and the PID-5 scales were less positively skewed in this sample compared with the other samples. These results are consistent with the possibility of extreme response styles potentially undergirding the relations between conspiracy beliefs and personality disorder traits, as the correlations were attenuated when there was lower skewness in the distributions. Although relative importance analyses indicated potentially important differences across the PID-5 dimensions in their associations with conspiracy beliefs—for example, psychoticism accounted for nearly 40% of the variance in conspiracy beliefs relative to other PID-5 dimensions—we cannot exclude the possibility that such findings are partly attributable to the greater skewness of certain PID-5 dimensions relative to others.

Hence, future research is needed to clarify the nature of these relations using (a) informant-reports of personality disorder traits and/or conspiracy beliefs and (b) independent behavioral observations (e.g., measures of how often individuals who endorse conspiracy theories via self-report engage in health-protective behaviors in the real world; Allington, Duffy, Wessely, & Dhavan, 2020). Such research would elucidate whether the correlations between conspiracy beliefs and certain self-reported personality disorder traits are inflated at least in part to the propensity to endorse low base-rate or unusual items independent of their content.

Nevertheless, the tendency to endorse socially undesirable items across measures may reflect substantive variation in addition to or in lieu of methodological variation. For example, the propensity to view oneself and the world in a pessimistic light might contribute to elevated scores on socially undesirable responding, and these elevated scores, in turn, may reflect response bias, trait pessimism, or a combination of the two (e.g., McGrath, Mitchell, Kim, & Hough, 2010). Furthermore, individuals with high scores on trait psychoticism, who are prone to perceiving patterns in random data, and hence, to committing false-positive errors (Blain, Longenecker, Grazioplene, Klimes-Dougan, & DeYoung, 2020), may have a lower threshold for perceiving implausible scenarios as plausible. Finally, we found little evidence that response bias in the form of acquiescence undergirded the associations between PID-5 traits and conspiracy beliefs when we covaried for indicators of this response bias or examined it as a moderator.

We found that narcissism dimensions were moderately positively correlated with conspiracy beliefs, as well; self-esteem, however, was negligibly associated. These results suggest that fragile self-esteem and grandiosity rather than normal-range self-esteem best predict conspiracy beliefs (Cichocka et al., 2016). Dovetailing with these associations, meanness and disinhibition psychopathy traits were positive correlates of conspiracy beliefs; boldness traits, however, were not significantly associated. Given that boldness comprises agentic extraversion, this latter result was broadly

consistent with the negligible association between extraversion and conspiracy beliefs. Relative important analyses indicated that the entitlement and impulsivity features of psychopathy and narcissism accounted for 40% to 80% of the variance in conspiracy beliefs; these results are consistent with the general personality findings, as honesty–humility (which is at least partially reflective of low meanness) and conscientiousness (which is at least partially reflective of low impulsivity) emerged as relatively more robust correlates of conspiracy beliefs than other HEXACO traits.

Furthermore, our results indicate that anxiety and depression symptoms manifest small positive correlations with conspiracy beliefs. These results are consistent with suppositions that conspiracy beliefs may arise from strong emotional reactions to negative life events (Douglas et al., 2019; van Prooijen & Douglas, 2018). The association between anger and conspiracy beliefs, however, was statistically negligible. Nevertheless, relative importance analyses indicated that anger accounted for relatively more variance in conspiracy beliefs than did depression. Thus, additional research is needed to clarify the links between conspiracy beliefs and anger. For instance, anger may be positively associated with certain conspiracies, such as those linked to violence, but negligibly associated with others (e.g., aliens have made contact with humans and the government is hiding it).

#### 4.1 | Limitations and future directions

The present study was marked by several strengths that distinguish it from other studies, and is arguably the first to comprehensively examine the associations between general personality facets and conspiracy beliefs. Nevertheless, this study was also marked by limitations that warrant consideration in future research. First, our study was cross-sectional, precluding conclusions about temporal, let alone causal, precedence in the examined associations. We also relied on self-report measures of individual differences constructs, rendering our results at least partially susceptible to mono-method bias. Still, our results indicated significant differentiation across constructs, suggesting the presence of substantive covariance rising above method covariance. Future studies should use a multi-method approach to examine the robustness of these associations across methodologies and shed light on potential causal mechanisms.

Additionally, we used the brief-form version of the PID-5, and it was not possible to extract facet-level scores from this measure (Anderson, Sellbom, & Salekin, 2018). Hence, we were not able to assess the relations between DSM-5 Section III personality disorders and conspiracy beliefs (e.g., Maples et al., 2015). In future research, examining the relations between a range of DSM-5 Section III personality disorder traits and diagnoses, on the one hand, and conspiracy

beliefs, on the other hand, may be fruitful. Such analyses may elucidate whether conspiracy beliefs are related to certain personality disorders specifically, such as schizotypal personality disorder (e.g., Barron et al., 2018), or general personality maladjustment more broadly. Similarly, we did not assess externalizing disorders *per se*. Given the links between externalizing features, such as impulsivity and violence propensity (Jolley et al., 2019; Swami, Weis, et al., 2016), and conspiracy beliefs, in future work it may be helpful to clarify the relations between externalizing disorder features and conspiracy beliefs.

We also relied on the HEXACO PI-R to measure general personality. Although the HEXACO and measures of the FFM overlap, there are potentially important conceptual and empirical differences across these measures, particularly concerning the disparities between (a) FFM neuroticism and agreeableness, and (b) HEXACO honesty–humility, emotionality, and agreeableness (Ashton et al., 2014). As such, they may manifest overlapping but separable nomological networks with certain individual difference constructs (e.g., psychopathy; Gaughan, Miller, & Lynam, 2012). Hence, it be would worthwhile to examine the relations between conspiracy beliefs and general personality using multiple measures of general personality to clarify potential boundary conditions concerning these relations.

Because our results suggest that the associations between general personality and conspiratorial ideation tend to be modest or even weak, they leave open the intriguing possibility that the multiplicative combination of certain psychological features more robustly predicts conspiracy beliefs than said features in isolation. As Hart and Graether (2018) noted, “it seems possible that some traits or tendencies would predict conspiracy belief only or mainly in the presence of complementary traits or tendencies” (p. 231). For instance, in the current studies, the flexibility and patience facets of agreeableness were weak negative correlates of conspiracy beliefs. In a multiplicative model, high flexibility in conjunction with high patience may best predict decreased risk for conspiracy beliefs compared with either trait in isolation. In future studies of conspiracy beliefs, it would be worthwhile to examine hypothesis-driven interactions among traits, bearing in mind that large sample sizes will typically be needed to detect such interactions if they are present.

#### 4.2 | Conclusion

In conclusion, our findings paint a multifaceted, albeit still hazy, portrait of the modal conspiracy-prone individual. A mixture of narcissism and undue intellectual certainty, on the one hand, conjoined with poor impulse control, angst, interpersonal alienation, and reduced inquisitiveness, on the other hand, may provide a personological recipe for a tendency to



impetuously latch on to spurious but confidently held causal narratives that account for one's distress and resentment. To the persons fitting this portrait, positing a world populated by malevolent actors hatching secret plots may be comforting, as it may afford at least a partial explanation for their otherwise inexplicable negative emotions. From the standpoint of cognitive dissonance theory (Festinger, 1962), it may be psychologically easier to invoke an external attribution, in this case, a conspiratorial worldview, to account for one's dissatisfaction than to posit an internal attribution. Such individuals may not see a compelling reason to double-check their intuitions because they are certain that they are correct. At the same time, given the relatively modest or weak effect sizes we have reported, the picture we offer here is best regarded as a fuzzy sketch, ideally one to be fleshed out in future research.

## ACKNOWLEDGMENT

The author(s) received no financial support for the research, authorship, and/or publication of this article.

## CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## ORCID

Shauna M. Bowes  <https://orcid.org/0000-0003-3826-9147>

Thomas H. Costello  <https://orcid.org/0000-0002-5188-3881>

## ENDNOTES

<sup>1</sup> Other individual differences (e.g., cognitive styles) and critical-thinking measures (e.g., an online intelligence test) were included in this data set, but they were not analyzed as a part of this report.

<sup>2</sup> Output with all relevant descriptive statistics is available in Supporting Information.

<sup>3</sup> Exploratory meta-regression analyses indicated that gender and age (examined in separate models) significantly moderated the relationships between conspiracy beliefs and the following constructs: (a) PID-5 Detachment, (b) Disinhibition (psychopathy), (c) Leadership/Authority (narcissism), and (d) Grandiose/Exhibitionism (narcissism). Regarding the gender moderation results, all indicated that the relationships between conspiracy beliefs and the aforementioned constructs decreased as the percentage of females in the samples increased. Regarding the age moderation results, all indicated that the relationships between conspiracy beliefs and the aforementioned constructs increased as the average age of the samples increased. Given the exploratory and unpredicted nature of these findings, we refrain from interpreting them pending replication in other samples. These results are available from the first-author upon request.

<sup>4</sup> Given that items on the conspiracy beliefs and PID-5 inventories were keyed in the same direction and yielded similar distributions

(see Figures S1–S4), at least some of the statistically significant findings may be attributable to method variance. Thus, in secondary analyses, we examined whether acquiescence bias on the HEXACO PI-R significantly moderated the associations between PID-5 dimensions and conspiracy beliefs using meta-regression (see Supporting Information 1, Footnote 3, for hierarchical regression analyses in which response bias was entered into the first step of the regression and PID-5 dimensions were entered into the second step of the regression in each sample). Only 1 result was statistically significant: response bias significantly moderated the relationship between PID-5 Detachment and conspiracy beliefs such that the relation decreased as response bias scores increased. Again, given the exploratory and unpredicted nature of this result, we refrain from interpreting it pending replication in other samples (see Figure S7).

## REFERENCES

- Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R. N. (1950). *The authoritarian personality*. New York, NY: Harper.
- Allington, D., Duffy, B., Wessely, S., Dhavan, N., & Rubin, J. (2020). Health-protective behaviour, social media usage and conspiracy belief during the COVID-19 public health emergency. *Psychological Medicine*, 1–7.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Anderson, J. L., Sellbom, M., & Salekin, R. T. (2018). Utility of the Personality Inventory for DSM-5–Brief Form (PID-5-BF) in the measurement of maladaptive personality and psychopathology. *Assessment*, 25, 596–607.
- Ashton, M. C., Lee, K., & De Vries, R. E. (2014). The HEXACO honesty-humility, Agreeableness, and emotionality factors: A review of research and theory. *Personality and Social Psychology Review*, 18, 139–152.
- Barends, A. J., & de Vries, R. E. (2019). Noncompliant responding: Comparing exclusion criteria in MTurk personality research to improve data quality. *Personality and Individual Differences*, 143, 84–89.
- Barron, D., Furnham, A., Weis, L., Morgan, K. D., Towell, T., & Swami, V. (2018). The relationship between schizotypal facets and conspiracist beliefs via cognitive processes. *Psychiatry Research*, 259, 15–20.
- Berg, I. A. (1959). The unimportance of test item content. In B. M. Bass & I. A. Berg (Eds.), *Objective approaches to personality assessment* (pp. 83–99). Princeton, NJ: D Van Nostrand.
- Blain, S. D., Longenecker, J. M., Grazioplene, R. G., Klimes-Dougan, B., & DeYoung, C. G. (2020). Apophenia as the disposition to false positives: A unifying framework for openness and psychoticism. *Journal of Abnormal Psychology*, 129, 279–292.
- Bogart, L. M., Wagner, G., Galvan, F. H., & Banks, D. (2010). Conspiracy beliefs about HIV are related to antiretroviral treatment nonadherence among African American men with HIV. *Journal of Acquired Immune Deficiency Syndromes*, 53, 648–655.
- Brotherton, R., French, C. C., & Pickering, A. D. (2013). Measuring belief in conspiracy theories: The generic conspiracist beliefs scale. *Frontiers in Psychology*, 4, 1–15.
- Bruder, M., Haffke, P., Neave, N., Nouripanah, N., & Imhoff, R. (2013). Measuring individual differences in generic beliefs in conspiracy



- theories across cultures: Conspiracy Mentality Questionnaire. *Frontiers in Psychology*, 4, 1–15.
- Buhrmester, M. D., Talafar, S., & Gosling, S. D. (2018). An evaluation of Amazon's Mechanical Turk, its rapid rise, and its effective use. *Perspectives on Psychological Science*, 13, 149–154.
- Chmielewski, M., & Kucker, S. C. (2019). An MTurk crisis? Shifts in data quality and the impact on study results. *Social Psychological and Personality Science*, 11(4), 464–473.
- Cichocka, A., Marchlewska, M., & de Zavala, A. G. (2016). Does self-love or self-hate predict conspiracy beliefs? Narcissism, self-esteem, and the endorsement of conspiracy theories. *Social Psychological and Personality Science*, 7, 157–166.
- Clarke, I. E., Karlov, L., & Neale, N. J. (2015). The many faces of narcissism: Narcissism factors and their predictive utility. *Personality and Individual Differences*, 81, 90–95.
- DeYoung, C. G., Grazioplene, R. G., & Peterson, J. B. (2012). From madness to genius: The Openness/Intellect trait domain as a paradoxical simplex. *Journal of Research in Personality*, 46, 63–78.
- Douglas, K. M., Sutton, R. M., & Cichocka, A. (2017). The psychology of conspiracy theories. *Current Directions in Psychological Science*, 26, 538–542.
- Douglas, K. M., Uscinski, J. E., Sutton, R. M., Cichocka, A., Nefes, T., Ang, C. S., & Deravi, F. (2019). Understanding conspiracy theories. *Political Psychology*, 40, 3–35.
- Duckitt, J., & Sibley, C. G. (2010). Personality, ideology, prejudice, and politics: A dual-process motivational model. *Journal of Personality*, 78, 1861–1894.
- Eisenbarth, H., Lilienfeld, S. O., & Yarkoni, T. (2015). Using a genetic algorithm to abbreviate the Psychopathic Personality Inventory-Revised (PPI-R). *Psychological Assessment*, 27, 1–9.
- Festinger, L. (1962). *A theory of cognitive dissonance* (Vol. 2). Stanford, CA: Stanford University Press.
- Galliford, N., & Furnham, A. (2017). Individual difference factors and beliefs in medical and political conspiracy theories. *Scandinavian Journal of Psychology*, 58, 422–428.
- Gaughan, E. T., Miller, J. D., & Lynam, D. R. (2012). Examining the utility of general models of personality in the study of psychopathy: A comparison of the HEXACO-PI-R and NEO PI-R. *Journal of Personality Disorders*, 26, 513–523.
- Gentile, B., Miller, J. D., Hoffman, B. J., Reidy, D. E., Zeichner, A., & Campbell, W. K. (2013). A test of two brief measures of grandiose narcissism: The Narcissistic Personality Inventory–13 and the Narcissistic Personality Inventory–16. *Psychological Assessment*, 25, 1–17.
- Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, 102, 74–78.
- Goh, J. X., Hall, J. A., & Rosenthal, R. (2016). Mini meta-analysis of your own studies: Some arguments on why and a primer on how. *Social and Personality Psychology Compass*, 10, 535–549.
- Goreis, A., & Voracek, M. (2019). A systematic review and meta-analysis of psychological research on conspiracy beliefs: Field characteristics, measurement instruments, and associations with personality traits. *Frontiers in Psychology*, 10, 1–13.
- Griffin, S. A., & Samuel, D. B. (2014). A closer look at the lower-order structure of the Personality Inventory for DSM-5: Comparison with the Five-Factor Model. *Personality Disorders: Theory, Research, and Treatment*, 5, 406–412.
- Hart J., Graether M. (2018). Something's going on here: Psychological predictors of belief in conspiracy theories. *Journal of Individual Differences*, 39, (4), 229–237.
- Hofstadter, R. (1964). The paranoid style in American politics. *Harper's Magazine*, 77–86.
- Imhoff, R., & Bruder, M. (2014). Speaking (un-) truth to power: Conspiracy mentality as a generalised political attitude. *European Journal of Personality*, 28, 25–43.
- Jolley, D., Douglas, K. M., Leite, A. C., & Schrader, T. (2019). Belief in conspiracy theories and intentions to engage in everyday crime. *British Journal of Social Psychology*, 58, 534–549.
- Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2013). *The personality inventory for DSM-5—brief form (PID-5-BF)—adult*. American Psychiatric Association: Author.
- Krumrei-Mancuso, E. J., Haggard, M. C., LaBouff, J. P., & Rowatt, W. C. (2019). Links between intellectual humility and acquiring knowledge. *The Journal of Positive Psychology*, 15, 155–170.
- Krumrei-Mancuso, E. J., & Rouse, S. V. (2016). The development and validation of the comprehensive intellectual humility scale. *Journal of Personality Assessment*, 98, 209–221.
- Lantian, A., Muller, D., Nurra, C., & Douglas, K. M. (2016). Measuring belief in conspiracy theories: Validation of a French and English single-item scale. *International Review of Social Psychology*, 29, 1–14.
- Latzman, R. D., Palumbo, I. M., Sauvigné, K. C., Hecht, L. K., Lilienfeld, S. O., & Patrick, C. J. (2019). Psychopathy and internalizing psychopathology: A triarchic model perspective. *Journal of Personality Disorders*, 33, 262–287.
- Leary, M. R., Diebels, K. J., Davison, E. K., Jongman-Sereno, K. P., Isherwood, J. C., Raimi, K. T., ... Hoyle, R. H. (2017). Cognitive and interpersonal features of intellectual humility. *Personality and Social Psychology Bulletin*, 43, 793–813.
- Lee, K., & Ashton, M. C. (2018). Psychometric properties of the HEXACO-100. *Assessment*, 25, 543–556.
- Leone, L., Giacomantonio, M., Williams, R., & Michetti, D. (2018). Avoidant attachment style and conspiracy ideation. *Personality and Individual Differences*, 134, 329–336.
- Lilienfeld, S. O., & Widows, M. (2005). *Professional manual for the psychopathic personality inventory-revised (PPI-R)*. Lutz, FL: Psychological Assessment Resources.
- Littrell, S., Fugelsang, J., & Risko, E. F. (2019). Overconfidently underthinking: Narcissism negatively predicts cognitive reflection. *Thinking & Reasoning*, 7, 1–29.
- Maples, J. L., Carter, N. T., Few, L. R., Crego, C., Gore, W. L., Samuel, D. B., ... Krueger, R. F. (2015). Testing whether the DSM-5 personality disorder trait model can be measured with a reduced set of items: An item response theory investigation of the Personality Inventory for DSM-5. *Psychological Assessment*, 27, 1195–1210.
- March, E., & Springer, J. (2019). Belief in conspiracy theories: The predictive role of schizotypy, Machiavellianism, and primary psychopathy. *PLoS ONE*, 14, e0225964.
- Marchlewska, M., Cichocka, A., Łozowski, F., Górka, P., & Winiewski, M. (2019). In search of an imaginary enemy: Catholic collective narcissism and the endorsement of gender conspiracy beliefs. *The Journal of Social Psychology*, 159(6), 766–779.
- Marcus, D. K., Eichenbaum, A. E., Anderson, A. E., Zimmerman, J. A., Nagel, M. G., Zeigler-Hill, V., ... Lilienfeld, S. O. (2019). Construction and preliminary validation of triarchic psychopathy scales from the HEXACO-100. *Psychological Assessment*, 31, 961–973.
- McGrath, R. E., Mitchell, M., Kim, B. H., & Hough, L. (2010). Evidence for response bias as a source of error variance in applied assessment. *Psychological Bulletin*, 136, 450–470.

- Miller, J. D., Hyatt, C. S., Maples-Keller, J. L., Carter, N. T., & Lynam, D. R. (2017). Psychopathy and Machiavellianism: A distinction without a difference? *Journal of Personality, 85*, 439–453.
- Miller, J. D., & Campbell, W. K. (2010). The case for using research on trait narcissism as a building block for understanding narcissistic personality disorder. *Personality Disorders: Theory, Research, and Treatment, 1*, 180–191.
- Oliver, J. E., & Wood, T. J. (2014). Conspiracy theories and the paranoid style (s) of mass opinion. *American Journal of Political Science, 58*, 952–966.
- Orosz, G., Krekó, P., Paskuj, B., Tóth-Király, I., Bóthe, B., & Roland-Lévy, C. (2016). Changing conspiracy beliefs through rationality and ridiculing. *Frontiers in Psychology, 7*, 1–9.
- Park, M., & Wu, A. D. (2019). Item response tree models to investigate acquiescence and extreme response styles in Likert-type rating scales. *Educational and Psychological Measurement, 79*, 911–930.
- Pilkonis, P. A., Choi, S. W., Reise, S. P., Stover, A. M., Riley, W. T., Cella, D., & PROMIS Cooperative Group. (2011). Item banks for measuring emotional distress from the Patient-Reported Outcomes Measurement Information System (PROMIS): Depression, anxiety, and anger. *Assessment, 18*, 263–283.
- Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54*, 890–902.
- Rosenberg, M. (1979). *Conceiving the self*. New York, NY: Basic Books.
- Senger, A. R., & Huynh, H. P. (2020). Intellectual humility's association with vaccine attitudes and intentions. *Psychology, Health & Medicine, 1*–10.
- Shapiro, G. K., Holding, A., Perez, S., Amsel, R., & Rosberger, Z. (2016). Validation of the vaccine conspiracy beliefs scale. *Papillomavirus Research, 2*, 167–172.
- Simms, L. J., & Calabrese, W. R. (2016). Incremental validity of the DSM-5 Section III personality disorder traits with respect to psychosocial impairment. *Journal of Personality Disorders, 30*, 95–111.
- Smith, G. T., McCarthy, D. M., & Zapolski, T. C. (2009). On the value of homogeneous constructs for construct validation, theory testing, and the description of psychopathology. *Psychological Assessment, 21*, 272–284.
- Stieger, S., Gumhalter, N., Tran, U. S., Voracek, M., & Swami, V. (2013). Girl in the cellar: A repeated cross-sectional investigation of belief in conspiracy theories about the kidnapping of Natascha Kampusch. *Frontiers in Psychology, 4*, 1–8.
- Stojanov, A., & Halberstadt, J. (2019). The Conspiracy Mentality Scale: Distinguishing between irrational and rational suspicion. *Social Psychology, 50*, 215–232.
- Swami, V. (2012). Social psychological origins of conspiracy theories: The case of the Jewish conspiracy theory in Malaysia. *Frontiers in Psychology, 3*, 1–9.
- Swami, V., Chamorro-Premuzic, T., & Furnham, A. (2010). Unanswered questions: A preliminary investigation of personality and individual difference predictors of 9/11 conspiracist beliefs. *Applied Cognitive Psychology, 24*, 749–761.
- Swami, V., Coles, R., Stieger, S., Pietschnig, J., Furnham, A., Rehim, S., & Voracek, M. (2011). Conspiracist ideation in Britain and Austria: Evidence of a monological belief system and associations between individual psychological differences and real-world and fictitious conspiracy theories. *British Journal of Psychology, 102*, 443–463.
- Swami, V., Nader, I. W., Pietschnig, J., Stieger, S., Tran, U. S., & Voracek, M. (2012). Personality and individual difference correlates of attitudes toward human rights and civil liberties. *Personality and Individual Differences, 53*, 443–447.
- Swami, V., Tran, U. S., Stieger, S., Pietschnig, J., Nader, I. W., & Voracek, M. (2016). Who believes in the giant skeleton myth? An examination of individual difference correlates. *SAGE Open, 6*, 1–7.
- Swami, V., Weis, L., Lay, A., Barron, D., & Furnham, A. (2016). Associations between belief in conspiracy theories and the maladaptive personality traits of the personality inventory for DSM-5. *Psychiatry Research, 236*, 86–90.
- Tellegen, A., & Waller, N. G. (2008). Exploring personality through test construction: Development of the multidimensional personality questionnaire. *The SAGE Handbook of Personality Theory and Assessment, 2*, 261–292.
- Tonidandel, S., & LeBreton, J. M. (2011). Relative importance analysis: A useful supplement to regression analysis. *Journal of Business and Psychology, 26*, 1–9.
- Tonidandel, S., & LeBreton, J. M. (2015). RWA web: A free, comprehensive, web-based, and user-friendly tool for relative weight analyses. *Journal of Business and Psychology, 30*, 207–216.
- Uscinski, J. E., & Parent, J. M. (2014). *American conspiracy theories*. New York: Oxford University Press.
- van Prooijen, J. W., & Douglas, K. M. (2018). Belief in conspiracy theories: Basic principles of an emerging research domain. *European Journal of Social Psychology, 48*, 897–908.
- Van Tongeren, D. R., Davis, D. E., Hook, J. N., & Witvliet, C. V. (2019). Humility. *Current Directions in Psychological Science, 28*, 463–468.
- Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software, 36*, 1–48.
- Watts, A. L., Waldman, I. D., Smith, S. F., Poore, H. E., & Lilienfeld, S. O. (2017). The nature and correlates of the dark triad: The answers depend on the questions. *Journal of Abnormal Psychology, 126*, 951–968.
- Wood, M. J., & Douglas, K. M. (2019). Conspiracy theory psychology: Individual differences, worldviews, and states of mind. In J. E. Uscinski (Ed.), *Conspiracy theories & the people who believe them* (pp. 245–256). New York, NY: Oxford University Press.
- Wood, M. J., & Gray, D. (2019). Right-wing authoritarianism as a predictor of pro-establishment versus anti-establishment conspiracy theories. *Personality and Individual Differences, 138*, 163–166.

## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

**How to cite this article:** Bowes SM, Costello TH, Ma W, Lilienfeld SO. Looking under the tinfoil hat: Clarifying the personological and psychopathological correlates of conspiracy beliefs. *Journal of Personality*. 2020;00:1–15. <https://doi.org/10.1111/jopy.12588>