

# Don't trust anybody: Conspiracy mentality and the detection of facial trustworthiness cues

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## Abstract

Conspiracy theories express mistrust in common explanations and epistemic authorities. Independent of concrete content, the extent of endorsing conspiracy theories has also shown associations with interpersonal mistrust. Arguing from an evolutionary and error-management perspective, this increased interpersonal mistrust could either represent an enhanced sensitivity to untrustworthiness cues, or a limited ability to recognize trustworthiness, or non-specific mistrust without differentiations between (un)trustworthiness cues. In two experimental studies ( $N = 563$ ), we manipulated facial trustworthiness and tested the differentiation of trustworthiness evaluations as a function of conspiracy mentality. We found that conspiracy mentality was associated with a generalized tendency to perceive others as untrustworthy, independent of facial trustworthiness, speaking to non-specific manifestations of mistrust. However, the association between conspiracy mentality and trust became non-significant once age was accounted for in Study 1. We discuss how conspiracy mentality may be associated with an increased propensity to view the world as having malevolent intentions.

## KEY WORDS

conspiracy mentality, conspiracy mindset, conspiracy theories, interpersonal trust, mistrust

## 1 | INTRODUCTION

The last years have witnessed an unprecedented visibility of conspiracy beliefs and their consequences—from the reluctance to comply with safety measures against the transmission of COVID-19 to the storm on the US Capitol in 2021. Consequently, there has been an upsurge in research interest what exactly drives conspiracy theory endorsements psychologically and about the central components and mechanisms of a conspiratorial worldview (for a differentiation between specific conspiracy beliefs and a general conspiratorial worldview, see Imhoff, Bertlich, & Frenken, 2022). A frequently discussed ingredient is mistrust (e.g., Pierre, 2020). Since conspiracy theories suspect groups or persons to plot in secret, endorsing such theories

logically requires mistrust against the involved groups. Research suggests that this suspicion not only concerns abstract political or societal groups, but is rather rooted in a deeper habit of general mistrust playing out at different levels, for example, also in the immediate interpersonal space (Goertzel, 1994). Not trusting others, however, is not inherently right or wrong. Despite trust being an important social glue, for instance, to promote participation in democratic societies (Sullivan & Transue, 1999) or to serve the well-being of individuals (Calvo et al., 2012), there are situations in which it might actually be beneficial to mistrust and accurately decipher cues in that regard. In the present research, we thus tested whether a general worldview that malevolent agents rule the world in secret is associated with accurately detecting cues of untrustworthiness from faces—or inaccurately missing

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trustworthiness cues. Before introducing the two pre-registered experiments, we briefly summarize the theoretical background why mistrust is an important feature of conspiracy mentality and discuss the conceivable manifestations of mistrust in the conspiracy context.

### 1.1 | Role of mistrust in the conspiracy mentality

Conspiracy theories share the joint feature of suspecting a hidden plot behind observable phenomena. They are thus an expression of mistrust against the idea that things are as they seem (Harambam & Aupers, 2015; Pierre, 2020). Accordingly, previous studies found correlations between conspiracy theory endorsement and mistrust in authorities (Abalakina-Paap et al., 1999; Einstein & Glick, 2015; Meuer & Imhoff, 2021), mistrust in institutions (Mari et al., 2022), and mistrust in experts (Imhoff et al., 2018). However, studies additionally demonstrated that conspiracy theory endorsement is also related to mistrust on intergroup levels (like nations; Mashuri & Zaduqisti, 2014; Pantazi et al., 2020) and even in less politicized and less power-related interpersonal contacts (like relatives and neighbors; Brotherton et al., 2013; Goertzel, 1994; Green & Douglas, 2018). At present, it is not clear whether distrust at the societal level branches out into the personal or vice versa. Suspicion towards institutions—as visible in conspiracy theories—can deteriorate social relations by limiting the functions of institutions to promote group norms (i.e., institutions as role models) and to evoke general feelings of security that affect interpersonal mistrust (Spadaro et al., 2020; van Prooijen et al., 2021). Reversely, another conceivable mechanism may be that low trust towards one's imminent surroundings form a schema—an inner working model associating trust with betrayal—that is also applied to the larger societal scale.

Interpersonal mistrust might be a psychological facet of *conspiracy mentality* (Imhoff & Bruder, 2014), a skeptical worldview to conjecture malevolent actors at play. This concept refers to a general attitude or mindset disposing to more readily suspect the existence of conspiracies. It is empirically supported by the finding that the extent of beliefs in conspiracy theories tends to be inter-individually stable across many different theories (Frenken & Imhoff, 2021). There are good reasons to differentiate between the endorsement of specific conspiracy theories and conspiracy mentality, but the latter seems to be particularly useful in tapping into the dispositional susceptibility to conspiracy-based interpretations of events (Imhoff, Bertlich, & Frenken, 2022). In the next sections, we spell out possibilities how the previously reported negative correlation between conspiracy mentality and trust might be based on the differential sensitivity to (un)trustworthiness cues (in the context of evaluations of unfamiliar faces).

### 1.2 | Faces as indicators of trustworthiness

Humans are presumably evolutionary endowed with perceptual and cognitive systems to detect (un)trustworthiness in faces in order to avoid exposure to risky situations and to allow cooperation and cohesion (Hansen & Hansen, 1988; Kawai et al., 2016; Neys et al., 2015,

2017). The fact that facial cues of trustworthiness extracted from samples from one culture also led to higher impressions of trustworthiness in another cultures has led many scholars to assume universality in what is seen as trustworthy (Birkás et al., 2014; Xu et al., 2012). The evaluation of faces of strangers is especially important for fast social attributions (Todorov et al., 2015) and guides approach-avoidance behavior under uncertainty (Todorov, 2008).

Against this background, we entertain the notion that conspiracy mentality might not only relate to self-reported levels of trust (Goertzel, 1994; Imhoff & Lamberty, 2018) or behavioral indicators of trust in economic games (Meuer & Imhoff, 2021) but to a differential sensitivity to such facial cues of (un)trustworthiness. The trustworthiness evaluation of unfamiliar faces breaks the complex topic of interpersonal trust down to a basal level (allowing clear experimental manipulations). Regarding the role of (facial) trust evaluations in the conspiracy context, people with a pronounced conspiracy mentality either make more use of cues that are commonly associated with untrustworthiness (*sensitivity*), or less use of common facial indicators of trustworthiness (*insensitivity*), or both simultaneously (i.e., general mistrust).

### 1.3 | Sensitivity to cues of (un)trustworthiness

The assumption that conspiracy believers show a heightened sensitivity to some information has received support in several domains like the attributions of intentionality and agency (Brotherton & French, 2015; Douglas et al., 2016; van der Tempel & Alcock, 2015) or the causal interpretation of spurious correlations (van der Wal et al., 2018). The effectiveness of this hypersensitivity is at question as it often emerges in contexts where there is actually nothing to detect and where patterns are illusory (van Prooijen, Douglas, & Inocencio, 2018). However, most of these examinations did not represent a fair test of effectiveness because they tested situations in which hypersensitivity was per default allegedly wrong or illusory and omitted situations where a heightened sensitivity could indeed be beneficial. With regard to trust, Meuer and Imhoff (2021) found no specifically higher or lower sensitivity to social threat cues (i.e., anger expressions) as a function of conspiracy mentality, albeit measuring behavioral decisions in economic games instead of direct impressions.

We argue that three different manifestations are conceivable to constitute the individual differences of mistrust associated with conspiracy mentality: First, it may be that people with a pronounced conspiracy mentality are particularly good at or likely to detect cues of untrustworthiness, speaking for an adaptive feature of increased sensitivity (*sensitivity hypothesis*). This idea is in line with the notion of an automatic cheater detection system as an evolved human cognitive function (van Lier et al., 2013). The interpersonal mistrust behind conspiracy mentality could represent the increased expression of such a module to detect untrustworthiness and to uncover malicious coalitions. This would speak in favor of an adaptive function of conspiracy beliefs as a critical receptiveness in detecting cover-ups could offer epistemic merits for democratic societies (Basham, 2018;

Hayward, 2021). Specifically, higher conspiracy beliefs in countries with less transparency and more corruption might point to the cue detection function of conspiracy theories (Alper, 2021; Imhoff, 2022).

Second, conspiracy mentality might—in direct contradiction to the first point—be accompanied by a blindness for trustworthiness cues (*insensitivity hypothesis*). The recognition of threatening (or untrustworthiness) cues then remains unaffected as a common adaptive feature, but the detection of trustworthiness would be weaker. The perception of mistrust in faces that in fact include trustworthiness cues could be particularly stronger among people with higher expressions of conspiracy mentality. To conjecture mistrust without the presence of explicit cues in that regard (but even in the contrary direction) would mirror findings that pattern perception is increased for conspiracy believers only when there are no cues to detect (e.g., van Prooijen, Douglas, & Inocencio, 2018). This insensitivity to trustworthiness cues would have dysfunctional implications as it is not beneficial in coalition detection but can encompass social costs by turning away from trustworthy persons. Such a limiting strategy is in line with other deficit-oriented findings that point to associations between conspiracy theory endorsements and greater susceptibility to biases like the representative heuristic (Moulding et al., 2016), the conjunction fallacy (Brotherton & French, 2014), as well as an intuitive rather than an analytical thinking style (Pytlak et al., 2020; Swami et al., 2014).

Third, individuals with a pronounced conspiracy mentality might tend to apply an undifferentiated no-trust heuristic, irrespective of facial cues (*non-specificity hypothesis*). Although this pattern could also be framed as a simultaneous presence of untrustworthiness-sensitivity and trustworthiness-insensitivity, it is more parsimonious to consider it as a general shift of trust standards. Applying the logic of the *Error Management Theory* (Haselton & Buss, 2000) to the detection of (mis)trust in faces, it could have been functional in ancestral times in terms of cost-benefit-calculations to overestimate mistrust in faces of strangers with the benefit of rarely missing untrustworthy individuals (false-negative), but at the cost of more often turning away actually trustworthy company (false-positive). As a false-negative would imply more drastic consequences than a false-positive, such asymmetrical benefit-cost-relations could have been positive in ancestral times. They can, however, imply social consequences like stigmatization in modern times (Lantian et al., 2018). A greater tendency to distrust among conspiracy believers could thus have functioned as an evolutionarily advantageous (i.e., adaptive) strategy to detect malevolent coalitions (van Prooijen & van Vugt, 2018). Of note, though, is that the non-specificity hypothesis of trust-evaluations is not necessarily related to error-management processes but could also be the result of learned individual differences as recent research indicated (Sutherland et al., 2020). Independent of its origin, the non-specificity hypothesis would translate more into the direction of an undifferentiated and generalized mistrust attitude.

## 1.4 | The present research

In the present studies, we tested how the recognition of (un)trustworthiness in faces is related to conspiracy mentality. Specifically, faces

varied on the experimentally manipulated trustworthiness dimension (trustworthy vs. neutral vs. untrustworthy) and participants judged which of the displayed persons they perceived as trustworthy (vs. untrustworthy). The differentiation allows answering the question whether conspiracy mentality is associated with an enhanced detection of untrustworthiness cues (*sensitivity hypothesis*), a limited detection of trustworthiness cues (*insensitivity hypothesis*), or a non-specific generalized mistrust (*non-specificity hypothesis*). The first study employed artificial computer-generated faces, whereas the second study used real faces from a database to bolster generalizability.

The two online studies tested the preregistered hypotheses that H1) the relative frequency of trustworthiness judgments across all experimental conditions is related to conspiracy mentality (as found for self-reported trust in questionnaires) and that H2) the magnitude of the relation between trustworthiness judgments and conspiracy mentality depends on the experimental trustworthiness condition. We also preregistered a hypothesis about parameters modeling the cognitive processes of the decision (i.e., *drift diffusion model*, Ratcliff & McKoon, 2008). Results were suggestive of drift rate effects (i.e., prioritized information accumulation in the direction of detecting low trustworthiness) but not fully consistent across the studies and we, therefore, report the results only in the *online Supplement*. The preregistrations, the data, the analysis code, and additional analyses are available on the Open Science Framework (<https://osf.io/f2rwe/>).

## 2 | STUDY 1: COMPUTER-GENERATED FACES

We tested the association of conspiracy mentality with trust evaluations by presenting trustworthy, neutral, and untrustworthy computer-generated faces. This artificiality ensures a high standardization and a clean manipulation of the trustworthiness dimension.

### 2.1 | Method

#### 2.1.1 | Participants

We aimed at collecting data of 300 participants as medium correlations are considered to stabilize around 250 participants (Schönbrodt & Perugini, 2013) and we also expected some exclusions. Initially, 299 individuals (161 women, 132 men, 6 non-binaries;  $M_{age} = 38.89$ ,  $SD_{age} = 13.53$ ) from the UK and the US were recruited on *Prolific* for 1.50 GBP. According to the preregistration, we excluded the datasets of 19 participants resulting in a final sample size of  $N = 280$  (1 participant indicating not to have completed the task in a serious manner; 18 participants who did not reach the 5% minimum relative frequency of one response option).

The effect-size sensitivity analysis (as suggested by Giner-Sorolla et al., 2019) using GPower (version 3.1.9.7, Faul et al., 2007) showed that the final analysis had 80% power to detect an interaction effect

**TABLE 1** Descriptive statistics and intercorrelations of the variables in Study 1

	M	SD	(1)	(2)	(3)	(4)	(5)
(1) f (all)	0.59	0.19	-				
(2) f (untrustworthy)	0.41	0.23	0.871 (<0.001)	-			
(3) f (neutral)	0.61	0.22	0.977 (<0.001)	0.808 (<0.001)	-		
(4) f (trustworthy)	0.74	0.20	0.848 (<0.001)	0.501 (<0.001)	0.828 (<0.001)	-	
(5) Conspiracy mentality	4.42	1.01	-0.131 (0.028)	-0.080 (0.184)	-0.134 (0.025)	-0.146 (0.014)	-
(6) Age	38.70	13.39	0.159 (0.008)	0.010 (0.871)	0.193 (0.001)	0.246 (<0.001)	-0.186 (0.002)

Note:  $f$  = Relative frequencies of trustworthiness judgments, separately for the experimental conditions.  $p$ -values (two-tailed) are presented in brackets. To adjust for multiple comparisons, the critical coefficient for the three correlations of the experimental conditions with conspiracy mentality is  $r = 0.143$  (Bonferroni-corrected, critical  $p$ -value 0.017).

of  $\eta^2 = 0.028$  between the experimental trustworthiness condition factor and the CM covariate when treating the conspiracy mentality covariate conservatively as a two level between-subjects factor.

### 2.1.2 | Measures

#### Interpersonal trust

The relative frequency of choosing the trustworthy (vs. untrustworthy) option in a binary decision task to evaluate displayed faces represented the experimental measure for interpersonal trust. The faces were computer-generated with custom scripts building on the FaceGen Software Development Kit along psychological dimensions found in spontaneous descriptions of novel faces (Oosterhof & Todorov, 2008). We randomly created 65 White male faces (without hair) that were neutral on the trustworthiness dimension and created a trustworthy (+1 SD) as well as an untrustworthy version (-1 SD) of each face.

#### Conspiracy mentality

We used a 12-items scale (Imhoff & Bruder, 2014) to measure conspiracy mentality with a seven-point response format from “strongly disagree” to “strongly agree.” The scale consisted of items like “Most people do not see how much our lives are determined by plots hatched in secret” and was internally consistent ( $\alpha = 0.89$ ).

### 2.1.3 | Procedure

After the general instructions and the note that some of the following presented persons are conspiring, participants were invited to judge whether the displayed face of a person is trustworthy or not by using the “f” and the “j” keys. The response key assignment was counterbalanced across participants. After two training trials, each of the 65 individual faces was presented three times (once per experimental condition) in random order resulting in a total of 195 trials without feedback. Participants were encouraged to respond as fast as

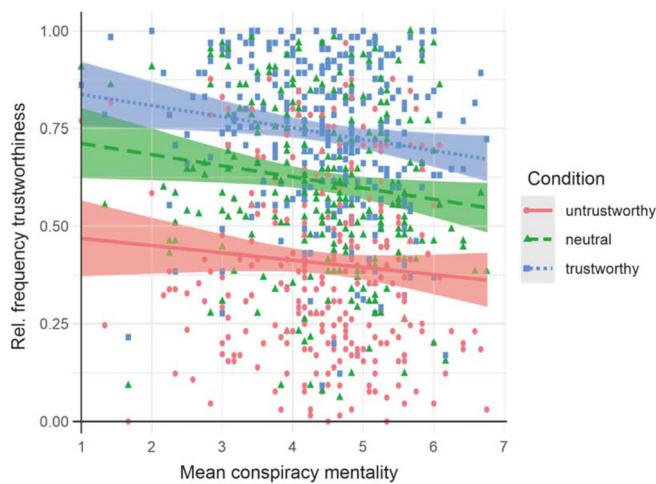
possible, and the response window was limited to 7 s. Finally, participants completed the conspiracy mentality scale and were thanked. The online experiment was conducted in Inquisit (version 5, Millisecond Software, LLC) and required the installation of the appropriate plugin in advance.

### 2.2 | Results

A correlational analysis between conspiracy mentality and the overall frequency of trustworthiness judgments was performed to test Hypothesis 1 and a repeated-measures analysis of covariance (ANCOVA) to test Hypothesis 2 with the experimental trustworthiness condition as three-levels within-subjects factor and the mean of the conspiracy mentality scale as covariate. The relative frequency of trustworthiness judgments was the dependent variable as a measure of interpersonal trust. The Huynh-Feldt adjustment of the degrees of freedom was employed to correct for violations of sphericity.

Supporting Hypothesis 1, the results demonstrate that a higher conspiracy mentality was accompanied by a reduced likelihood to judge displayed faces as trustworthy,  $r = -0.131$ ,  $p = 0.028$  (see Table 1 and Figure 1). The significant main effect of the within-subjects condition factor in the rmANCOVA showed that the experimental manipulation worked and that participants were generally able to detect (un)trustworthiness cues in the presented faces,  $F(1.31, 362.24) = 37.71$ ,  $p < 0.001$ , partial  $\eta^2 = 0.119$ . Contrary to Hypothesis 2, however, this was not qualified by conspiracy mentality,  $F(1.31, 362.24) = 0.73$ ,  $p = 0.427$ , partial  $\eta^2 = 0.003$ . Instead, conspiracy mentality was associated with general mistrust as indicated by the significant main effect of the covariate,  $F(1, 278) = 4.89$ ,  $p = 0.028$ , partial  $\eta^2 = 0.017$ .

Previous research has pointed to the relevance of demographic variables like gender (women judging trustworthy faces as more trustworthy, Mattarozzi et al., 2015) and age (older adults perceiving faces as more trustworthy, Cassidy et al., 2019). In the present study, age was significantly related to both, trust judgments (especially in the



**FIGURE 1** Scatterplot and regression lines of the three experimental trustworthiness conditions in Study 1. Conspiracy mentality is negatively associated with the relative frequency of trustworthiness estimations. The correlational pattern is similar across experimental conditions. Error bands display the 95% CI.

trustworthy condition) and conspiracy mentality (see Table 1). We thus exploratory controlled for age in a partial correlation. The correlation between trust judgments and conspiracy mentality slightly decreased to  $r_{\text{part}} = -0.105, p = 0.081$ , not meeting the conventional level of significance anymore. The other demographic variables gender and education status were unrelated to the frequency of trust judgments and conspiracy mentality (see OSF: f2rwe).

## 2.3 | Discussion

The experimental trust manipulation was successful as participants were able to recognize the facial (un)trustworthiness cues and used them for their decision. Conspiracy mentality was negatively associated with interpersonal trust as measured by the relative frequency of perceiving novel faces as trustworthy, independent of the experimental condition. This pattern is more compatible with a generalized mistrust than a higher alertness to untrustworthiness or a limited ability to detect trustworthiness cues. The general association of conspiracy mentality was also substantial in the neutral condition without manipulated (un)trustworthiness cues and thus supports the framing of a general heuristic instead of considering it as simultaneous sensitivity to untrustworthiness and insensitivity to trustworthiness. The age of the participants shared parts of the covariance of interest, that is, older participants tended to score higher on interpersonal trust and lower on conspiracy mentality, slightly pointing to a trust bias in aging (see Cassidy et al., 2019). Despite this, the results provide greater support for the non-specificity hypothesis than for the untrustworthiness-sensitivity or the trustworthiness-insensitivity hypothesis. To bolster the generalizability of the findings (with a notably small effect size and with correlations not reaching the level of significance in all experimental conditions), we conducted a replication study with real faces.

## 3 | STUDY 2: REAL FACES

The second study used a similar experimental design and tested the same hypotheses as the first study but employed real instead of artificial faces to increase external validity. To avoid frequent repetitions of the same individual faces, we presented them only in high and low trustworthiness conditions (without neutral) as this suffices to test the hypotheses. Furthermore, the diverse original faces of real persons would not constitute a clean neutral condition compared to the computer-generated faces because they do not express a comparable baseline level of trustworthiness.

### 3.1 | Method

#### 3.1.1 | Participants

The initial sample size comprised  $N = 300$  participants (141 women, 156 men, 3 non-binaries/no response;  $M_{\text{age}} = 38.18, SD_{\text{age}} = 13.63$ ) from the UK und the US recruited on Prolific for 2 GBP. The final analysis comprised  $N = 283$  participants after excluding—as preregistered—2 participants who reported that they did not complete the task in a serious manner and 15 participants who did not reach the minimum relative frequency of one response option (5%).

The effect-size sensitivity analysis (see Study 1) revealed that the final analysis had 80% power to detect an interaction effect of  $\eta^2 = 0.027$  between the experimental trustworthiness condition and the conspiracy mentality covariate when treating the covariate conservatively as a two level between-subjects factor.

#### 3.1.2 | Measures and procedure

The measures of conspiracy mentality ( $\alpha = 0.90$ ) and interpersonal trust were similar to Study 1, except the exclusion of the neutral trustworthiness condition. This time, the stimuli were real White male faces from the *Chicago Face Database* (Ma et al., 2015) and the expression of high (+ 1 SD) and low (- 1 SD) trustworthiness as experimental conditions was manipulated using the *ScalismoFaceMorpher* (Gerig et al., 2018; Walker & Vetter, 2016). This is a WebApp enabling to change facial expressions of uploaded pictures on various dimensions, among them trustworthiness. The stimuli consisted of 92 different faces that were presented once in each experimental condition resulting in a total of 184 trials. The general procedure was a mirror image of Study 1 with the exception that the randomization of trials was restricted in that each individual face only appeared once in the first and in the second half of all trials. The aim was to avoid the direct or close succession of the same individual face and to allow a separate analysis of both halves without recurring faces within a half. Although we originally pre-registered to test our predictions with only the first half of trials, we report analyses for all trials here, as the pattern of results does not differ (see OSF project for detailed analyses). This way, each

	M	SD	(1)	(2)	(3)	(4)
(1) f (all)	0.51	0.21	-			
(2) f (untrustworthy)	0.46	0.21	0.978 (<0.001)	-		
(3) f (trustworthy)	0.57	0.22	0.980 (<0.001)	0.915 (<0.001)	-	
(4) Conspiracy mentality	4.42	1.08	-0.154 (0.010)	-0.160 (0.007)	-0.142 (0.017)	-
(5) Age	38.36	13.63	0.294 (<0.001)	0.236 (<0.001)	0.338 (<0.001)	-0.012 (0.846)

Note:  $f$  = Relative frequencies of trustworthiness judgments, separately for the experimental conditions.  $p$ -values (two-tailed) are presented in brackets. To adjust for multiple comparisons, the critical coefficient for the two correlations of the experimental conditions with conspiracy mentality is  $r = 0.134$  (Bonferroni-corrected, critical  $p$ -value 0.025).

participant evaluated all faces in both conditions, thus eliminating any confounds.

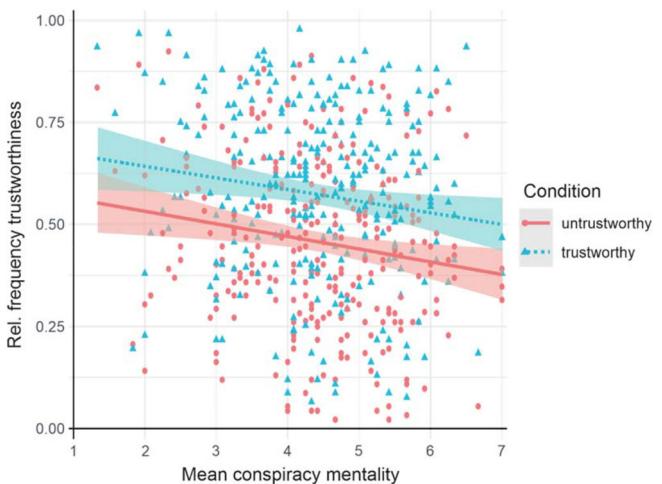
### 3.2 | Results

Interpersonal trust and conspiracy mentality were significantly correlated,  $r = -0.154$ ,  $p = 0.010$  (see Table 2), as expected in Hypothesis 1. Higher conspiracy mentality was associated with lower frequencies of evaluating a face as trustworthy (see Figure 2). The rmANCOVA without adjusted degrees of freedom revealed a main effect of facial trustworthiness,  $F(1, 281) = 22.76$ ,  $p < 0.001$ , partial  $\eta^2 = 0.075$ , speaking to the effectiveness of the manipulation. Again, however, it yielded no significant trustworthiness condition  $\times$  conspiracy mentality interaction,  $F(1, 281) = 0.22$ ,  $p = 0.636$ , partial  $\eta^2 = 0.001$ , but a significant effect of the conspiracy mentality covariate,  $F(1, 281) = 6.80$ ,  $p = 0.010$ , partial  $\eta^2 = 0.024$ . This pattern of results suggests that conspiracy mentality was associated with general mistrust, irrespective of the facial (un)trustworthiness cues. In exploratory analyses, we found no substantial relations between demographic variables (age and gender) and conspiracy mentality (see OSF: f2rwe), suggesting—contrary to Study 1—that age is irrelevant for the association between conspiracy mentality and trust judgments.

### 3.3 | Discussion

The experimental trust manipulation in Study 2 was successful and participants judged the same face as more trustworthy when trustworthy cues were morphed into the face. The study replicated the results of Study 1 in a more diverse and realistic face dataset. Conspiracy mentality correlated with experimental measures of non-specific interpersonal mistrust, independent of the displayed (un)trustworthiness cues in the faces. This is further support for the non-specificity hypothesis. The following meta-analysis summarizes the effects of both studies.

**TABLE 2** Descriptive statistics and intercorrelations of the variables in Study 2



**FIGURE 2** Scatterplot and regression lines of both experimental trustworthiness conditions in Study 2. Conspiracy mentality is negatively associated with the relative frequency of trustworthiness estimations. The correlational pattern is similar across experimental conditions. Error bands display the 95% CI.

### 4 | INTERNAL META-ANALYSIS: STUDIES 1 AND 2

The internal meta-analyses using the *meta* package in R (Schwarzer, 2021) included the correlations from both studies between conspiracy mentality and the overall relative frequency of trustworthy judgments across experimental conditions, respectively the frequency difference between the high and low trustworthiness conditions in a second meta-analytic model. Overall interpersonal trust judgments and conspiracy mentality were significantly correlated,  $r = -0.143$ , 95% CI  $[-0.223; -0.061]$ ,  $p < 0.001$ , in a fixed effect model,  $I^2 < 0.1\%$ ,  $\tau^2 < 0.001$ ,  $p = 0.788$ . There was no significant correlation across both studies between conspiracy mentality and the differences of interpersonal trust judgments between high versus low trust conditions,  $r = -0.010$ , 95% CI  $[-0.092; 0.073]$ ,  $p = 0.822$ , in a fixed effect model,  $I^2 < 0.1\%$ ,  $\tau^2 < 0.001$ ,  $p = 0.370$ . The results support

once more the conclusion that conspiracy mentality is related to a non-specific increase of interpersonal mistrust. Aggregating the partial correlations controlling for age (to test the trust bias in aging as suggested in Study 1) still yielded a robust association,  $r = -0.130$ , 95% CI [-0.211; -0.047],  $p = 0.002$ .

## 5 | GENERAL DISCUSSION

In the present two studies, we examined the relation between conspiracy mentality and trustworthiness judgments, following the assumption that mistrust is a central psychological component behind the endorsement of conspiracy theories. The studies employed faces with manipulated expressions of trustworthiness and replicated that interpersonal mistrust is a robust correlate of conspiracy mentality, that is, that individuals with a low conspiracy mentality generally tend to judge faces as more trustworthy compared to individuals with a higher conspiracy mentality. Further differentiations yielded that the mistrust is non-specific rather than a consequence of an alertness to untrustworthiness or an ignorance of trustworthiness cues, although participants made generally use of these cues (i.e., a significant main effect). The threshold to evaluate faces as trustworthy is generally higher in case of a more pronounced conspiracy mentality. This finding was consistent across both studies and is in accordance with previous research also indicating undifferentiated mistrust in behavioral measures (Meuer & Imhoff, 2021). More generally, the studies pointed to general cognitive systems related to the detection of untrustworthiness (or cheating, e.g., van Lier et al., 2013) as indicated by the significant main effect of the experimental manipulation. However, they failed to show that these mechanisms are more sensitive among people scoring high on conspiracy mentality, that is, performing above conventional cognition (see Lewandowsky et al., 2018).

That conspiracy mentality was accompanied by a generally increased tendency to judge other persons as untrustworthy is probably a facet of a broader generalized mistrust in conspiracy mentality tending to view the world as a place of malevolence and social danger (Moulding et al., 2016). Although this mentality is more strongly correlated with content-contaminated institutional mistrust compared to conspiracy-unrelated mistrust (e.g., interpersonal; Imhoff & Lamberty, 2018), there is accumulative evidence for a general tendency to mistrust on various levels. Mistrust towards institutions might radiate on other forms of mistrust like on interpersonal levels, transmitted through feelings of (in)security and group norms (Spadaro et al., 2020; van Prooijen et al., 2021).

Considering the endorsement of conspiracy theories from an evolutionary and error-management perspective, these findings have important implications. To the extent that the no-trust heuristic automatically leads to a higher detection of untrustworthiness (true-positives), this style is somehow functional in preventing to approach untrustworthy persons (or to detect conspiracies and malevolent coalitions). However, this comes also with the social cost of distancing from trustworthy persons (false-positives) and might thus be

maladaptive in modern times (van Prooijen & van Vugt, 2018) or in cultural contexts where such malevolent plots are less frequent (Imhoff, 2022). While this no-trust heuristic can be interpreted as a slightly functional strategy of ancestral times, there are arguments against this perspective as well. The diagnostic validity (and usefulness) of facial features is limited (Todorov et al., 2015), concluding that evolutionary advantages should not be overexaggerated. Furthermore, Sutherland et al. (2020) demonstrated that individual differences in trust evaluations are rather due to personal experiences than genes suggesting the interindividual variance represents a learned worldview instead of inherited functions. Different triggers like social, epistemic, and existential motives that can predict the endorsement of conspiracy theories (Douglas et al., 2017) might play a role for a learned increase in mistrust.

Although age and gender are also relevant factors in the context of (facial) trust evaluations (Cassidy et al., 2019; Mattarozzi et al., 2015), they are unrelated to conspiracy mentality in the literature (Imhoff, Zimmer, et al., 2022; van der Tempel & Alcock, 2015). In the present contribution, age was related to conspiracy mentality and shared parts of the correlation between conspiracy mentality and interpersonal trust (that became non-significant) only in the first study. Nevertheless, neither the second study, nor the internal meta-analysis corroborated this confound. Age can thus not substantially explain the association between interpersonal trust and conspiracy mentality.

### 5.1 | Implications

For research on the endorsement of conspiracy theories, the present study has the important implication that the result of a general shift of trust standards supports the notion of conspiracy mentality as a situation-independent disposition, rather than a reaction to specific situations (see Frenken & Imhoff, 2021; Imhoff, Bertlich, & Frenken, 2022). Future research could focus on quantifying the role of mistrust in the conspiracy framework in comparison to other key facets and correlates and examine how mistrust may be causally related to them.

Other implications are related to the functionality of societies and the well-being of their members: Interpersonal trust is a component of societal cohesion (Stolle et al., 2008) and is associated with decreased stress responses (Takahashi et al., 2005), anxiety (Schneider et al., 2011), and social isolation (Rotenberg, 1994) of individuals. Therefore, it is important to understand the structure and psychology behind the conspiracy mentality where mistrust plays a key role to adequately address the alienation of individuals from society. Interventions aiming at decreasing the endorsement of conspiracy beliefs may pay attention to the interpersonal facet of this suspicious mentality. Building up solid social structures and trustworthy environments as well as social participation and integration might complement more formal or argumentative aspects like transparency and exchanging information. Regarding the relevance of interpersonal trust, interpersonal contact with conspiracy

believers should probably be rather supportive than confrontational when trying to convince people tending to endorse epistemically unwarranted beliefs. Of course, our studies have some limitations that might reduce the generalizability of some of these practical implications.

## 5.2 | Limitations

One limitation of the studies is that the artificial experimental settings may be less suitable to translate the findings into real meetings and in-person evaluations of strangers as many other contextual influences are conceivable in practice (see Todorov et al., 2015). The basal measurement of interpersonal trust in the context of unfamiliar faces might not be generalizable to closer interpersonal relations or other dimensions of interpersonal trust like trusting others as an informational source that could also be relevant concerning conspiracy theories.

Additionally, even though the results were consistent across both studies, they yielded only small effects. Although effect sizes might arguably have been greater when employing more fine-grained trustworthiness assessment (instead of a binary option), this might have evoked different and less spontaneous decisional processes. Specifically, thinking in units of abstract likelihoods might not map well on the more ecologically valid option of being forced to either trust a person or not.

Moreover, the present research cannot rule out other potential confounding factors responsible for the observed association. One plausible candidate might be the personality trait of agreeableness because individuals low in agreeableness judge faces as less trustworthy (Matarozzi et al., 2015). Speaking against a confounding influence, however, agreeableness shows only very small negative—and meta-analytically non-significant—relations with conspiracy beliefs (Bowes et al., 2021; Brotherton et al., 2013; Bruder et al., 2013; Galliford & Furnham, 2017; Goreis & Voracek, 2019; Swami et al., 2011). Another confounding variable could be participants' ethnicity as perceptions of facial trustworthiness can be biased in favor of their own ethnicity (Birkás et al., 2014). Study 2 comprised only White faces that might have been evaluated as less trustworthy by participants with other ethнич backgrounds and ethnic minority status has further been linked to increased conspiracy beliefs (van Prooijen, Staman, & Krouwel, 2018). Nevertheless, the artificial computer-generated faces in Study 1 had no specific ethnicity.

## 5.3 | Conclusion

The study elucidates the exact nature of the relation between conspiracy mentality and the judgment of others as trustworthy. The differentiation of processes behind the interpersonal mistrust revealed rather general and non-specific patterns, although with only small effect sizes. Conspiracy mentality is presumably accompanied by manifold manifestations of global mistrust as a general worldview that can

have various discernible consequences, for instance, for the intention to get vaccinated in case of mistrust in authorities (Jolley & Douglas, 2014) or generally for the well-being of individuals and the cohesion within a society. How the increased mistrust originates and if the content-contaminated epistemic and institutional mistrust radiates on interpersonal levels remains an open question.

## ACKNOWLEDGMENTS

We would like to thank Paul Barker for assisting in creating the computer-generated face stimuli of Study 1.

## CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

## DATA AVAILABILITY STATEMENT

The data, preregistrations, and additional analyses are publicly available (OSF: f2rwe; <https://osf.io/f2rwe/>).

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**How to cite this article:** Frenken, M., & Imhoff, R. (2022).

Don't trust anybody: Conspiracy mentality and the detection of facial trustworthiness cues. *Applied Cognitive Psychology*, 1–10. <https://doi.org/10.1002/acp.3955>