Anger Damns the Innocent

Journal:	*Psychological Science*
Manuscript ID	PSCI-20-0311.R2
Manuscript Type:	Research Article
Keywords:	Emotions, Morality

Abstract

False accusations of wrongdoing are common and can have grave consequences. In six studies, we document a worrisome paradox in perceivers' subjective judgments of a suspect's guilt. Specifically, we find that people (including online panelists, $N = 4{,}983$; and working professionals such as fraud investigators and auditors, $N = 136$) use suspects' angry responses to accusations as cues of guilt. However, we find that such anger is an invalid cue of guilt and is instead a valid cue of innocence; accused individuals (university students, $N = 230$) and online panelists ($N = 401$) are angrier when they are falsely versus accurately accused. Moreover, we find that those who remain silent are perceived to be at least as guilty as those who angrily deny the accusation.

Keywords: accusations, deception, guilt, affect, decision making

Statement of Relevance

Perceivers interpret suspects' angry responses to accusations as evidence of their guilt. Yet, people are even angrier when they are falsely accused versus accurately accused. We find that both laypeople and those in consequential decision-making roles are prone to this effect when making judgments of a suspect's guilt. Our research is relevant to those interested in everyday social and workplace interactions, relationships, communication, and conflict. It is also relevant to those with an interest in public policy and justice issues.

Anger Damns the Innocent

False accusations permeate social life—from the mundane blaming of others to more serious accusations of infidelity and workplace wrongdoing. Importantly, false accusations can have grave consequences, including broken relationships, job loss, and reputational damage.

False accusations arise in part because many accusations lack physical evidence (Peterson, Ryan, Houlden, & Mihajlovic, 1987) and it is difficult to tell whether suspects are being truthful (DePaulo & Pfeifer, 1986). As a result, laypeople (Ekman & O'Sullivan, 1991; ten Brinke, Vohs, & Carney, 2016) and professionals (DePaulo & Pfeifer, 1986) often rely on invalid cues when making subjective judgments about suspects' credibility (Kraut & Poe, 1980; ten Brinke et al., 2016). In this paper, we document an equally pernicious phenomenon—the misuse of anger as a cue that *does* predict whether a suspect has been falsely accused.

Person Perception and Deceit Detection

According to the Brunswik (1952) Lens Model, a distal objective reality is manifested through various cues that are used to judge reality. By distinguishing *ecological validity*, or the relationship between objective reality and cues, from *cue utilization*, or the relationship between perceived cues and judgment, this model provides an account of judgment accuracy. In the context of our research questions, a cue's ecological validity refers to the extent to which a suspect's anger is related to their guilt, and cue utilization refers to the extent to which a suspect's anger correlates with observers' perceptions of the suspect's guilt.

Utilization of Anger as a Cue of Guilt

People look to others' emotions in seeking to understand social situations (van Kleef, 2009), particularly when trying to determine whether someone is lying (see Vrij & Granhag, 2007). Angry responses are common in initial accusations in the field (Reisig, McCluskey,

Mastrofski, & Terrill, 2004). As one of the first potential cues in an accusation process, it is worth investigating whether angry responses affect perceivers' judgments of guilt and whether these inferences are valid.

We contend that when judging whether a suspect has been accurately accused, perceivers interpret suspects' anger as a sign of guilt. We argue that this is because, first, anger can make people come across as untrustworthy (Dunn & Schweitzer, 2005). Second, perceivers use untrustworthiness in guilt judgments (Porter & ten Brinke, 2009). As a result, we propose that when perceivers are alerted to a suspect's anger, perceivers are apt to find the suspect untrustworthy, prompting a judgment of guilt. Perceivers may even interpret a suspect's displayed anger as an inauthentic attempt to look innocent by faking moral indignation. This would further explain why perceivers deem an angry suspect guilty via perceptions of (in)authenticity.

That said, there are important distinctions between the experience of anger (the feeling of being angry) versus its display (the expression or communication of anger). We argue that if an observer is simply aware of an accused's anger—even if it is not displayed—it should positively relate to observers' guilt judgments. This is because knowing that someone is angry triggers a perception of uncooperativeness (van Doorn, Heerdink, & van Kleef, 2012), which is associated with judgments of deceit (DePaulo et al., 2003). Further, if an individual is believed to be experiencing but not displaying anger, observers may feel as though the accused is dishonest and inauthentic (Côté, Hideg, & van Kleef, 2013), decreasing trust and shaping guilt perceptions.

We test our prediction for the effect of anger on perceived guilt relative to three conditions (calmness, irritation, and silence). We reasoned that calmness likely signals cooperativeness and pleasantness, which are negatively associated with deceit perceptions

(DePaulo et al., 2003). For robustness purposes, we test whether the predicted effect holds for mild anger (irritation). Finally, we included a silent condition based on research demonstrating that people distrust others perceived to be withholding information (John, Barasz, & Norton, 2016); we predicted that perceivers would also infer guilt from silent denials..

Ecological Validity of Anger as a Cue of Guilt

Meta-analyses have documented a paucity of ecologically valid deception cues (DePaulo et al., 2003; DePaulo & Morris, 2004). Moreover, the few ecologically valid cues identified (such as eye dilation; DePaulo et al., 2003) have small predictive relationships and are difficult to reliably perceive, impeding utilization. Here, we propose that perceivers utilize suspects' anger as an invalid cue of guilt, but that this cue is actually predictive of innocence.

Despite much research examining the ecological validity of different emotional cues for determining truthfulness (Ekman, 2001), the validity of anger as a cue to guilt is not yet known. Decades of research demonstrate that anger occurs when someone experiences a negative event or outcome (Smith, Haynes, Lazarus, & Pope, 1993), especially when, as is the case in a false accusation, they perceive someone else as blameworthy (Berkowitz & Harmon-Jones, 2004). Moreover, anger results from experiencing injustice (Averill, 1983), motivating individuals to fight back to correct it (Batson et al., 2007; Frijda, 1986); therefore, it is a likely emotion among the falsely accused. While it is possible that guilty suspects also experience anger because they have been caught or feel mistreated, we argue that anger is likely to be stronger among the innocent whose experience is a greater injustice.

Research Overview

Studies 1-4 examine cue utilization; Studies 5 and 6 examine ecological validity. We test our hypotheses across different types of accusations (e.g., serious versus trivial; physically

aggressive versus not) and contexts (e.g., more versus less formal) as well as types of anger expressions (subtle and strong) and with both felt and displayed anger.

We report all manipulations, measures, studies, and exclusions. All studies were approved by institutional review boards and all participants provided informed consent. All stimuli and data are posted at https://osf.io/rvzna/?view_only=dff05f17253c4dd993b259891818caaf

Cue Utilization: Perceivers Interpret Suspects' Anger as Evidence of Guilt

Study 1

Method

Participants and Procedure. Participants were 1,920 MTurk workers (882 male, 1024 female, 12 non-binary, 2 other; 1395 White, 221 Black, 113 Hispanic, 111 Asian, 45 multi-racial and 35 other/prefer not to answer; M_{age} = 37.18, SD = 12.01).

We designed this study to test whether perceivers interpret suspects' anger as evidence of their guilt, using real suspects. All participants were randomized to view one of 33 clips in which a person accused on the television show "Judge Faith" pleaded their case. For information on clip selection and a link to the clips, please see the supplemental material. Judge Faith is a televised courtroom show in which actual disputes are heard by a real judge (Judge Faith) who makes judgments, though it is not a formal legal proceeding. At the outset of the study, all participants confirmed their willingness and ability to watch and pay attention to a short video clip. This study was pre-registered at https://osf.io/b97up/?view_only=a1f8246c6cb64e34a7a1722b0bc40f34

Measures. Our primary outcome measures were participants' judgments of the accused's anger and guilt; between-participants, we counterbalanced presentation order. To measure

perceptions of anger, we drew items from extant measures (Harmon-Jones & Sigelman, 2001; Lerner & Keltner, 2001) and asked participants to what extent the accused seemed angry, aggravated, frustrated, upset, and irritated, on a scale from 1 = *very slightly or not at all* to 5 = *extremely*. To measure perceptions of guilt, participants were asked: "based on the video you just watched, how likely is it that the defendant[1] is guilty?" which they answered on a 7-point scale (from 1 = *extremely unlikely* to 7 = *extremely likely*). We also asked participants what they anticipated the judge would decide. Participants could respond "*The judge will say that the defendant is not guilty*" or "*The judge will say that the defendant is guilty*." We incentivized their choice by adding that they would earn a $0.10 bonus if they correctly guessed the judge's decision (clips in which the claim was dismissed or in which the judge decided in favor of the accused were counted as "not guilty"; those in which the judge ruled in favor of the accuser were counted as "guilty").

To ensure results were not driven by perceptions of negative traits or negative emotion, we assessed participants' perceptions of the accused's sadness (sad, blue, downhearted, alone, lonely) (from the PANAS-X; Watson & Clark, 1994) and competence (competent, confident, independent, competitive, intelligent; Fiske, Cuddy, Glick, & Xu, 2002). Both were measured on 5-point scales (from 1 = *not at all* to 5 = *extremely*) (the order of sadness and competence was counter-balanced between participants). These measures help to assess the specificity of our predicted effect—that judgments of guilt are uniquely associated with anger, and not with other cues such as negative emotions (sadness) or traits (incompetence).

As an attention check, we administered one question that had a correct answer: "Was the

[1] We used the word "defendant" in our experimental materials to mean the accused individual, and "guilty" as an outcome perception variable, but we note that this setting is not a real legal proceeding and guilt does not mean that individuals were formally charged or convicted.

defendant in the clip a man or a woman?" (response options: *man, woman, unsure*). To exclude participants who had difficulty watching the video, we asked: "In the video you watched, what crime/offense was the defendant accused of?" (Participants were given an open response box, or could select one of "*I could not hear sound in the video,*" "*I could not see the video,*" "*I could not see or hear the video,*" or "*I don't know or don't remember what the defendant was accused of*"). Finally, to remove bots and inattentive participants, we also asked participants two open-ended questions: "Please describe two of the questions that you answered in this HIT" and "What did you eat for dinner last night?" A research assistant blind to the hypotheses determined legitimate responses to these questions. Additionally, we probed for how often participants had previously watched Judge Faith. This and all studies concluded with demographic questions.

Results

Analysis Strategy. As indicated in our pre-registration, we excluded participants who indicated that they could not watch or hear the clip (n = 53), who took fewer than two minutes or greater than 2 *SD*s above the average complete time to finish the study (≥ 768.4 seconds; n = 86), who failed the attention check (n = 99), who wrote gibberish in the open-ended responses (n = 65) and those from duplicate IP or MTurk IDs (n = 5), resulting in a final sample of N = 1,677 (average of 50.82 participants per clip).

As detailed in our pre-registration, because participants were nested within video clips, our data were multilevel and therefore we used hierarchical linear modeling in jamovi software (The jamovi project, 2020). This analysis allows us to hold constant the characteristics of the videos themselves such as the type of offense or the race and gender of the accused and accuser, and isolate the association between participants' judgments of anger and perceived guilt of the accused. We used restricted maximum likelihood estimation for the continuous dependent

variable and logistic models for the dichotomous outcome, included a fixed intercept, modeled the random coefficient component for the intercept, and specified participant-level variables at level 1 and group-mean centered them (Enders & Tofighi, 2007). We report results indicating the unstandardized participant-level fixed effect estimates with beta coefficients (β) and report conditional R^2 estimates from the model. Significant clustering at the video level was observed in null models with LRT for random effects tests and ICC values in both dependent variables (ps <.001).

Perceptions of Guilt. Participants' judgments of the accused's anger were significantly and positively associated with judgments of guilt, both for the continuous measure (β = .24, SE = .04, 95% CI [.17, .31], t(1, 1,643) = 6.45, R^2 = .23, p < .001) and the incentivized choice (β = .23, SE = .06, 95% CI [.10, .36], z(1, 1,643) = 3.58, R^2 = .22, p < .001).

Robustness Checks. The positive relationship between perceptions of the accused's anger and participants' judgment of guilt held when including participants' judgments of the accused's sadness and competence in the model (p's for anger remained < .001). Therefore, the effects we see for anger are unlikely to be explained by the negative valence of the emotion, or by associations with judgments of accused's competence. These models showed that sadness was not a statistically significant predictor for either guilt measure, but competence was. Modeling competence as a predictor, judgments of the accused's competence were negatively related to guilt judgments in the continuous measure, $\beta_{competence}$ = -.37, SE = .04, 95% CI [-.45, -.29], t(1, 1,643) = -9.01, R^2 =.25, p < .001 and the incentivized choice measure ($\beta_{competence}$ = -.64, SE = .07, 95% CI [-.9, -.50], z(1, 1,643) = -8.64, R^2 =.24, p < .001). In addition, we had two study-blind research assistants code the videos to determine the target of the accused's anger. Of the clips with anger, research assistants coded 69% to have anger directed at the accuser. All results hold

when excluding data from participants who watched one of the five videos with anger directed at other parties (e.g., the judge, the IRS).

We also conducted exploratory analyses including modeling participants', accusers', and accused's demographic characteristics, which we report in the supplemental material.

Discussion

We found that participants' judgments of the suspects' anger was predictive of their perceptions of guilt. However, Study 1 is subject to alternative interpretations such as reverse causality or perceivers' individual differences increasing sensitivity to anger and guilt. Of note, the anger mean across the 33 clips was low (*Grand Mean* = 2.43 on a five-point scale, *SD* = .60), which may have meant that accused regulated their anger when in formal settings, when they had time to process the accusation, or when on television. Finally, there might have been more disputes in which the accused was unwilling to compromise or admit guilt, possibly reducing variance, making our estimates conservative. That said, participants might have perceived anger displays in court as inappropriate, inferring that someone who displayed anger has self-control issues indicative of latent misbehavior. We addressed these issues in Studies 2 and 3.

Study 2

Method

Participants and Procedure. Study 2 encompassed three nearly identical experiments testing our main hypothesis that observers use anger as a cue to guilt, testing causality. Studies 2A and 2C were conducted on MTurk (N = 402); Study 2B was a replication with a nationally representative sample (N = 1,578 participants from ROI, an online panel); Study 2C was a pre-registered replication (N = 375). Results across these three studies were consistent. For

simplicity, in this section we describe their common methods and procedures, and report combined results (i.e., a meta-analysis of the three studies; $N = 1{,}782$). We provide full details, participant demographics and exclusions, and analyses of all three studies separately in the supplemental material. We targeted a minimum sample size of 100 participants per between-subjects condition, consistent with recent thinking on appropriate sample sizes (Simmons, 2014), for studies 2A and 2C, and 1,500 responses for the nationally representative 2B.

Across all three studies, participants read a scenario about Andrew Smith, a fictitious accused who was described as pleading not guilty to charges of armed robbery. We designed our experiment to test our predictions that the suspect would be perceived as guiltier when angry relative to when calm or irritated, with irritation—a weak display of anger—falling in between the two. Moreover, while remaining silent may seem to offer the innocent an elixir to the hypothesized danger of appearing angry, we predicted that participants would also infer guilt from silence (John et al., 2016).

In the silent condition, participants read that while he was pleading not guilty, Smith was not testifying, as was his constitutional right. In each of the other three conditions, participants read about Smith's reaction while denying his guilt during his testimony (see supplemental material for full manipulation text). In the calm condition, Smith was described as reacting calmly, saying "I really can't believe I'm being accused of this crime," without raising his voice. In the irritated condition, Smith was described as raising his voice, saying "I'm irritated that I'm being accused of this crime." Finally, in the anger condition, Smith was described as raising his voice and very angrily saying: "I'm so fucking OUTRAGED that I'm being accused of this crime!" Though such extreme reactions are probably not very common in the courtroom, we intentionally used such a reaction to compare the guilt perceptions it garnered relative to a less

extreme, and likely more representative, display of anger (i.e., the irritated condition).

Measures. Participants rated their perceptions of the accused's guilt on a scale ranging from 1 (*extremely unlikely*) to 7 (*extremely likely*). To examine mechanisms, we also asked respondents how (in)authentic and trustworthy the accused seemed, expecting those variables to mediate the relationship between suspects' anger and judgments of guilt.

Results

All manipulation checks were significant and in the expected direction; these results are reported for each individual study in the supplemental material.

There was a significant effect of condition on perceptions of Smith's guilt, $\rho = .25$, $p < .001$, 95% CI [.21, .29], see Figure 1. Smith was perceived as guiltier when he reacted angrily versus irritatedly, $d = .22$, 95% CI [.10, .34], and angrily versus calmly, $d = .38$, 95% CI [.26, .50]. Smith was perceived as guiltier when he reacted irritatedly versus calmly, $d = .16$, 95% CI [.04, .27], and guiltier when he was silent versus reacted angrily, $d = -.15$, 95% CI [-.27, -.04]. Finally, Smith was perceived as guiltier when he was silent than when he was calm, $d = .55$, 95% CI [.43, .67].

Indirect Effects. Mediation analysis suggested that anger (compared to calmness) was perceived to be less authentic and less trustworthy; both significantly mediated the effect of anger on judgments of guilt, $B_{authenticity} = .08$, 95% CI [.039, .117]; $B_{trust} = .10$, 95% CI [.06, .13].

Additional Analyses. In Study 2A, we tested alternative mechanisms for the relationship between anger and perceived guilt, including the extent to which anger was an (in)appropriate response or made the accused seem defensive, impulsive, or lacking in self-control (among others; see supplemental material). When comparing these mechanisms, only authenticity and trustworthiness emerged as candidates for mediation, while the indirect effects through all other

measures were not significant, with all bootstrapped coefficients ≤ .07 (see supplemental material for full discussion). Additionally, the main effect of emotion response on perceptions of guilt remained significant when controlling for these measures, $F(3, 392) = 7.10$, $p < .001$, $\eta^2 = .05$.

Discussion

Studies 1-2 showed that laypeople interpret an accused's anger as a sign of guilt, provided evidence for the mechanisms of this association, and demonstrated that it holds when controlling for several alternative explanations. Moreover, we found that this effect also manifests in an irritation condition, as well as the more extreme anger manipulation.

In Study 2, participants were given information on what emotion a suspect displayed, and not necessarily felt. Thus, participants may have believed the anger to be feigned. Accordingly, our mediation analysis found that the effect of anger on perceived guilt was mediated both by perceived untrustworthiness *and* perceived inauthenticity. That said, an additional study (see supplemental material Study 2D) in which we described the accused as simply feeling angry versus calm when denying their involvement showed consistent results.

Finally, we note that Study 2 employed stylized courtroom scenarios. Although our results supported our hypotheses, criminal justice experts may aptly note that actual criminal justice proceedings contain many contextual factors not captured in our scenarios, and that such factors affect perceived guilt – perhaps even more so than our variable of interest: anger. Thus, we note that the predictive validity of our results – the extent to which any given defendant's display of anger affects perceivers' judgments of their guilt, may be modest. Therefore, in the next study, we move away from the criminal justice context, and employ a more informal accusation of wrongdoing – one that a scenario study can more readily capture with reasonable

fidelity.

Study 3

Method

Participants. We recruited participants from Prolific Academic. According to an a priori power analysis, 352 participants per condition were needed to detect a small-to-medium effect (two-tailed, $d = .30$). Therefore, we aimed to recruit 800 participants (and 815 people opened the survey link) with the goal of ending up with 704 participants after pre-registered exclusions: 1) those who did not correctly answer a question designed to check for bots (they were directed out of the study before reading the scenario); 2) those who failed an attention check; and 3) those who provided nonsensical responses to an open-ended question. We successfully recruited 708 participants (337 men, 359 women, 12 unspecified; $M_{age} = 32.79$, $SD_{age} = 12.27$). We pre-registered this study at http://aspredicted.org/blind.php?x=64ff78.

Procedure. We designed this study to test whether the use of anger as a cue of guilt generalizes to accusations other than those in a courtroom scenario. Participants were randomized to read one of two scenarios.[2] In the first scenario, participants were told that Nathan has been in a 5-year relationship with his partner, but has recently been emotionally distant, says he has to work late, and lays his cell phone face-down when not looking at it; his partner suspects he is cheating on her. In the second scenario, participants were told that Nathan works at a small grocery store and that his manager has noticed the cash registers sometimes come up short, resulting in a total loss of about $500 over the past few months; she suspects Nathan. Next, participants were randomized to read that when confronted, Nathan either "*raises his voice and*

[2] We created these scenarios based on the most frequently recalled accusation contexts from Study 5.

angrily denies responsibility, yelling, 'I am so pissed off that you think I would do this!' or "*calmly denies responsibility, stating, 'I really can't believe you think I would do this.'*"

Next, participants rated their perceptions of the accused's guilt, completed two manipulation checks, and provided demographic information.

Perceptions of Guilt. We asked, "How likely is it that Nathan is guilty?" (from 1 = *extremely unlikely* to 7 = *extremely likely*).

Manipulation and Attention Checks. To check our manipulations of anger versus calm, we asked two items: "In the scenario you read, how angrily [calmly] did Nathan react?" (from 1 = *not at all* to 7 = *very*).

We used two pre-registered attention checks to remove non-compliant participants and bots. As an attention check, we asked, "According to the scenario you read, what was Nathan accused of?" If the person did not select "stealing from a cash register" or "cheating on his partner" we excluded their data from analysis. We also asked, "As part of this study, you read a short scenario. Please briefly describe what it was about." Those who provided nonsensical responses, as coded by a research assistant blind to the purpose of the study, were excluded from analysis.

Results

The effect of emotional response on guilt perceptions did not vary by (stealing versus cheating accusation) scenario, $F < .01$, $p = .995$. Therefore, the results are collapsed across scenarios.

Manipulation Checks. Participants thought the accused was angrier in the angry condition ($M = 6.27$, 95% CI [6.17, 6.37]) than in the calm condition ($M = 2.88$, 95% CI [2.71, 3.05]), $t(576.94) = 33.58$, $p < .001$, $d = 2.61$, 95% CI [2.50, 2.78]. Participants thought the

accused was calmer in the calm condition (M = 5.02, 95% CI [4.85, 5.20]) than in the angry condition (M = 1.61, 95% CI [1.50, 1.72]), t(593.66) = 32.23, p < .001, d = 2.49, 95% CI [2.31, 2.60].

Perceptions of Guilt. The angry target (M = 4.69, 95% CI [4.56, 4.82]) was perceived to be guiltier than the calm target (M = 4.30, 95% CI [4.18, 4.43]), t(706) = 4.15, p < .001, d = .32, 95% CI [.18, .44].

Discussion

Study 3 showed that relative to those who calmly deny an accusation, those who angrily deny are perceived as guiltier, in several common accusations. An additional study (supplemental material Study 3B), indicated these results were robust to perceived appropriateness.

Study 4

Method

Participants. We designed this study to examine whether perceivers' use of anger as a guilt cue holds among working professionals, such as fraud investigators and auditors, who, as part of their job, may routinely form consequential judgments of others' guilt. As such, we sought to present each type of professional with a scenario that was relevant to their occupation and required an assessment of an accused individual's guilt. Participants were recruited by posting a request on a large, certified fraud professional association website, and by sending solicitation emails to law-related listservs (e.g., local bar associations) and distributing requests via personal contacts in the legal and police professions. We sought to obtain at least 100 participants (aiming for n = 50/cell) and successfully recruited 197 working professionals (91 male, 43 female, 134 unreported; M_{age} = 45.76 SD = 13.21); 86 White, 3 Black, 14 Asian, 13

Hispanic, 15 other, 66 unreported) who completed this study in exchange for their choice of an Amazon.com gift card or payment via PayPal worth $10. We did not conduct analyses until data collection was completed. From this sample, we excluded participants (n = 61) who did not fully complete the study (of these, 58 did not complete any dependent measures), yielding a final sample of N = 136. The results hold when we include the responses from the three participants who completed some, but not all, dependent measures. In total, 44.1% of the sample indicated they were fraud investigators, 11% police or criminal investigators, 3.6% lawyers, 2.9% loss prevention/security, 2.9% law enforcement students, and 35.3% 'other' (mostly auditors or fraud examiners).

Procedure. Participants read that they had been called in to help with an incident at a mid-sized accounting firm. To enhance realism, we tailored the phrasing of this role to the given participant's profession (i.e., fraud accountants, police/criminal investigators, loss prevention/security, or law/law enforcement students read that they had been "called to help investigate an incident" while criminal defense lawyers read that they had been "hired to help defend three employees who were recently involved in an incident" and criminal prosecution lawyers read that they were working on a "prosecution involving an incident at a mid-size accounting firm"). We used a similar scenario to Study 2A-2C: $6,000 of computing equipment had been stolen from a storage room and only three employees had access to that room. In a within-subjects design, we described how each suspect reacted when called into his boss's office and accused of wrongdoing: John reacted angrily ("John reacts angrily to the accusation. He screams, 'I can't believe you would accuse me of stealing fucking computers! I've never taken a goddamn thing from storage!'"), Patrick reacted calmly ("Patrick reacts calmly to the accusation. He says, 'I didn't know the computers were missing. I didn't steal them. I've never taken

anything from storage.'"), and Richard did not respond ("Richard sits there silently and does not say anything in response to the accusation"). The order of the descriptions was randomized between participants. We then asked participants: "How likely do you think that each of these employees is guilty?" (1 = *extremely likely* to 7 = *extremely unlikely*). After they completed the ratings, they completed an open-ended response to the following prompt: "Please briefly describe why you think each of these employees are (un)likely to be guilty. Please describe how, if at all, your training, experience, and expertise influenced your decision?"

Results

A repeated-measures ANOVA showed that guilt perceptions depended on the accused's response, $F(2, 270) = 11.92$, $p < .001$, $\eta^2 = .081$, 95% CI [.03, .14]. Replicating Study 2, participants thought both the angry employee ($M_{angry} = 3.24$, 95% CI [2.94, 3.55]) and the silent employee ($M_{silent} = 2.92$, 95% CI [2.67, 3.17]) were guiltier than the calm employee ($M_{calm} = 3.90$, 95% CI [3.65, 4.16]), $t(135) = 3.11$, $p = .002$, $d = .38$, 95% CI [.13, .68], and $t(135) = 5.08$, $p < .001$, $d = .61$, 95% CI [.36, .87], respectively. The difference between the angry and silent employees was not significant, $t(135) = 1.54$, $p = .125$, $d = .19$, 95% CI [-.12, .44]. A qualitative analysis of respondents' open-ended commentary on their perceptions of the suspects' guilt was consistent with these quantitative results and is reported in the supplemental material.

Discussion

Using a sample of working professionals, including fraud investigators and auditors, Study 4 indicated that an angry response to an accusation was interpreted as a sign of guilt, relative to remaining calm. Moreover, compared to remaining calm and to angrily denying an accusation, remaining silent is also perceived as a cue of guilt and therefore does not appear to be a viable solution for the accused to avoid the negative effects of anger.

Ecological Validity: Anger is a Predictor of Innocence, not Guilt

Next, we describe experiments that examined whether suspects' anger was related to their actual guilt versus innocence.

Study 5

Method

Participants. We sought to collect 100 participants per cell of the design (N = 400). Participants (N = 401, 212 men, 189 women; M_{age} = 35.29 SD = 10.29; 299 White, 40 Black, 29 Asian, 26 Hispanic, 7 other) were United States residents recruited from MTurk. Note: we also conducted a conceptual replication of this study (see Study 5B in supplemental material).

Procedure. We conducted a 2 (accusation type: false, rightful) X 2 (seriousness: serious, trivial) between-subjects design. We included a seriousness condition to examine whether the effect of accusation type on anger was consistent across both serious incidents — which have greater stakes — and trivial accusations, which usually have lesser consequences. Participants were randomized to one of four conditions asking them to write about a time they had been accused of wrongdoing. Specifically, in the serious rightful [false] accusation condition, participants responded to the prompt: "Tell us about a time that you were rightfully [falsely] accused of a serious wrongdoing (e.g., cheating on a spouse, workplace misconduct, academic dishonesty). That is to say, recall a time when someone accused you of doing something you actually did [not do]." In the trivial conditions, we substituted the word 'trivial' for 'serious.'

After describing the incident, participants were asked: **"**How long ago did this incident occur?" (*less than a day ago; 1 day-1 week ago; 1 week-1 month ago; 1 month-6 months ago; 6 months-1 year ago; 1-3 years ago; 3-5 years ago; and 5+ years ago*) and "Did you deny this

accusation?" (*yes, no*).

Next, participants reported how much they felt ("Try to remember the emotions you were feeling at the time of the accusation") and displayed ("Try to remember the emotions you displayed in the interaction with your accuser") anger and calmness. The anger items (angry, aggravated, hostile, irritable, and frustrated) were adapted from an established scale (Harmon-Jones & Sigelman, 2001). The calmness items (calmness, relaxation) were developed by the researchers. All emotions were rated on scales ranging from 1 (*very slightly or not at all*) to 5 (*extremely*) ($\alpha_{\text{felt anger}} = .92$ and $\alpha_{\text{displayed anger}} = .93$; $r(401)_{\text{felt calm}} = .72$, $p < .001$, and $r(401)_{\text{displayed calm}} = .77$, $p < .001$). We then asked two manipulation check questions: "How serious was the incident you were accused of?" (1 = *not at all serious*; 5 = *extremely serious*) and "To what extent were you actually guilty of what you were accused of?" (1 = *I was not guilty*; 7 = *I was guilty*). Finally, participants provided demographic information.

Results

Manipulation Checks. As expected, participants in the rightful accusation condition ($M = 6.18$, 95% CI [5.94, 6.42]) reported being more guilty than participants in the false accusation condition ($M = 1.35$, 95% CI [1.19, 1.51]), $F(1, 399) = 1{,}113.10$, $p < .001$, $\eta_p^2 = .74$, 95% CI [.70, .77]. Participants in the false accusation condition ($M = 2.94$, 95% CI [2.75, 3.13]) also reported that their incident was more serious than participants in the rightful accusation condition ($M = 2.56$, 95% CI [2.38, 2.74]), $F(1, 399) = 8.12$, $p = .005$, $\eta_p^2 = .02$, 95% CI [.002, .055].

Participants in the serious condition reported that the incident was more serious ($M = 3.45$, 95% CI [3.28, 3.61]) than participants in the trivial condition ($M = 2.12$, 95% CI [1.96, 2.28]), $F(1, 399) = 123.97$, $p < .001$, $\eta_p^2 = .24$, 95% CI [.17, .30]. The interaction between the accusation type and serious conditions was not significant for either manipulation check

measure, both *p*s ≥ .245.

Anger. A univariate ANOVA revealed a main effect of accusation type, $F(1, 397) = 74.50$, $p < .001$, $\eta_p^2 = .158$, 95% CI [.10, .22] and a main effect of seriousness, $F(1, 397) = 4.93$, $p = .027$, $\eta_p^2 = .012$, 95% CI [.00, .04] on felt anger, see Figure 2. When the accusation was false, people felt angrier ($M = 3.57$, 95% CI [3.41, 3.73]) than when the accusation was rightful ($M = 2.57$, 95% CI [2.40, 2.73]). A similar pattern was found for displayed anger: there was a main effect of accusation type, $F(1, 397) = 50.87$, $p < .001$, $\eta_p^2 = .114$, 95% CI [.06, .17], but the main effect of seriousness was not significant, $F(1, 397) = 3.19$, $p = .075$, $\eta_p^2 = .008$, 95% CI [.00, .03]. When the accusation was false, people displayed more anger ($M = 3.09$, 95% CI [2.94, 3.27]) than when the accusation was rightful ($M = 2.25$, 95% CI [2.08, 2.42]).

The interaction between emotional response and severity was not significant for either felt or displayed anger, both *p*s ≥ .272, both η_p^2s ≤ .003, suggesting that the effect held for both trivial (e.g., taking a roommate's food) and serious (e.g., cheating on a romantic partner, assault) accusations.

Calm. The main effects of accusation type and seriousness on how much participants reported feeling calm were not significant, $F(1, 397) = 3.09$, $p = .080$, $\eta_p^2 = .008$, 95% CI [.000, .034], and $F(1, 397) = 3.23$, $p = .073$, $\eta_p^2 = .008$, 95% CI [000, .034], respectively. There was a tendency for participants to report feeling more calm when the accusation was trivial ($M = 1.69$, 95% CI [1.56, 1.83]) than serious ($M = 1.52$, 95% CI [1.38, 1.66]) and when the accusation was rightful ($M = 1.69$, 95% CI [1.55, 1.83]) rather than false ($M = 1.52$, 95% CI [1.38, 1.65]). The main effects of accusation type and seriousness were not significant for displayed calm, $F(1, 397) = 1.76$, $p = .186$, $\eta_p^2 = .004$, 95% CI [000, .026], and $F(1, 397) = 1.89$, $p = .170$, $\eta_p^2 = .004$, 95% CI [.000, .027], respectively. The interaction between accusation type and seriousness was

not significant for felt or displayed calm, both ps $\geq .671$, both η_p^2s $\leq .00$.

Additional Analyses. Participants were more likely to report denying a false accusation (94.6%) than a rightful accusation (40.6%), $\chi^2(1, N = 401) = 134.47$, $p < .001$, $V = .58$, consistent with our assumption that individuals who are falsely accused tend to deny the accusation. Participants were equally likely to deny a trivial versus a serious accusation, $\chi^2(1, N = 401) = .75$ $p = .387$, $V = .04$. Additionally, denial did not interact with accusation type to predict felt or displayed anger or calm, all ps $\geq .096$, and when restricting the sample to only those individuals who denied wrongdoing, all results remained the same (see supplemental material for analyses).

Additionally, all results held when controlling for the amount of time since the transgression had occurred. Finally, when we excluded 47 participants (11.7%) who failed to follow instructions (i.e., wrote nonsensical essays or wrote about a false accusation in the rightful accusation condition), results held.

Discussion

Turning to cue ecological validity, we found that—across a variety of trivial and serious recalled accusations—people reported feeling and displaying more anger when they were falsely versus rightfully accused. We note that anger in this study was just above the scale midpoint, suggesting that the effects of recalled anger may be dissipated relative to the moment of an accusation (which might be true especially for serious, real accusations that we cannot ethically manipulate). We examine suspects facing an accusation in real time in Study 6.

Study 6

Method

Participants. We sought to collect as many participants as possible within a reasonable

time frame, aiming for N=200 (100 per cell of the design). We did not analyze data until data collection was complete. We recruited 230 participants for an in-person laboratory study from a participant pool at a large US university (77 male, 151 female, 2 unreported; M_{age} = 25.93, *SD* = 9.05; 106 White, 23 Black, 73 Asian, 16 Hispanic, 10 other, 2 unreported). Participants were invited to take part in the study as part of a larger group of studies and were told that they would be given a $2.00 bonus for completing the current study correctly (i.e., this payment was would be in addition to their guaranteed compensation for participating in the study).

Procedure. We designed this study to manipulate a real-time accusation in the lab and to assess the mechanism behind this relationship (feelings of injustice). We employed a 2-cell between-subjects design; participants were randomized to either a false or a rightful accusation condition. We adapted a scenario that Higgins, Rholes, & Jones (1977) used to study impression formation describing a man named Donald (we changed the name of the main character from Donald to John so as not to evoke feelings about the current President of the United States, Donald Trump). We asked all participants to copy and paste a paragraph of text about John into a textbox and then manipulated false versus rightful accusation using task difficulty. In the rightful accusation condition, participants were tasked with correctly identifying and deleting adverbs from the paragraph ("difficult task"). In the false accusation condition, the task was much easier and involved correctly identifying and capitalizing the first and last letter of the paragraph ("easy task").

After participants completed their task, we asked them to wait while the researcher checked their work. This cover story was plausible because a research assistant was visible at the start of the experiment, sitting in front of a computer, in plain sight of the participants. Thus, participants could reasonably assume that their work was being assessed in real time. After a

short waiting period after submitting their work, we accused each participant of wrongdoing by sending them a message ostensibly from a research assistant that they had not properly paid attention and not followed instructions, and that as a result, a $2 bonus payment would be withheld (we did not actually withhold any payment). It was phrased, "We believe that your response to the previous question was incorrect, and indicates that you have not been paying adequate attention. We may withhold the $2.00 bonus." We reasoned that if we accused all participants of not completing the task correctly, we could simulate both false (easy task) and correct (difficult task) accusations.

Following this message, we asked participants, "To what extent do you feel that the task is fair?" and "To what extent do you feel that our assessment of your performance on the task was fair?" (1 = *extremely unfair* to 7 = *extremely fair*). This was important because it could be that participants believed that the task itself was less fair in the harder task (rightful accusation condition). However, we anticipated that participants would feel that the researcher's assessment of the easier task (i.e., the false accusation) was more unfair, consistent with our theory about why individuals would be angry when falsely accused.

Participants next completed the key dependent variable using same 5-item measure of felt anger ($\alpha = .91$) and the same 2-item measure of felt calm ($r(230) = .89$, $p < .001$) used in Study 5. As an attention check, we asked participants to recall their task instructions (What were you asked to do in the editing task today?; response options: *capitalize the first letter of every word, delete every noun in the passage, capitalize all the "e"s in the passage, delete every adverb in the passage, capitalize the first and last letter of the passage*). Finally, we asked participants, "To what extent do you feel like you were falsely accused in this study?" (1 = *not at all*, 5 = *to a great extent*). All participants received the $2.00 bonus and were debriefed.

Results

Attention and Manipulation Checks. Of the 230 participants, 4 recalled the task instructions incorrectly, and 4 people did not complete the assigned task (i.e., they pasted incorrect text into the text box). All participants were retained in the analyses that follow. The results do not change when these noncompliant participants are excluded.

Participants were more likely to report feeling falsely accused in the false accusation (easy task) condition ($M = 4.06$, 95% CI [3.84, 4.27]) than in the rightful accusation (difficult task) condition ($M = 2.84$, 95% CI [2.60, 3.08]), $F(1, 228) = 54.62$, $p < .001$, $\eta^2 = .193$, 95% CI [.11, .28]. Participants in the false accusation condition (82.6%) were more likely to complete the task properly (i.e., to be falsely accused of failing) than participants in the rightful accusation condition (.8%), $\chi^2(1, N = 230) = 160.24$, $p < .001$, $V = .84$.

Anger. Participants reported feeling angrier in the false accusation condition ($M = 2.30$, 95% CI [2.12, 2.48]) relative to the correct accusation condition ($M = 1.96$, 95% CI [1.79, 2.13]), $F(1, 228) = 7.22$, $p = .008$, $\eta^2 = .031$, 95% CI [.002, .086]. Additionally, the feeling of being falsely accused correlated significantly with anger, $r(230) = .42$, $p < .001$.

Fairness. Participants also believed the researcher's assessment of their performance was less fair in the false accusation condition ($M = 2.16$, 95% CI [1.85, 2.46]) relative to the correct accusation condition ($M = 3.72$, 95% CI [3.43, 4.01]), $F(1, 228) = 53.17$, $p < .001$, $\eta^2 = .189$, 95% CI [.11, .28]). We also analyzed participants' perceptions of *overall* task fairness to ensure the task itself was not driving fairness perceptions, but instead, the accusation itself. Participants perceived the difficult task ($M = 4.26$, 95% CI [3.92, 4.61]) to be equally as fair as the easy task ($M = 3.84$, 95% CI [3.48, 4.21]), $F(1, 228) = 2.68$, $p = .103$, $\eta^2 = .01$, 95% CI [.00, .05].

As predicted, there was an indirect effect of experimental condition on anger via

participants' feelings that the assessment was unfair (B = .26, 95% CI [.12, .41]).

Calm. Participants felt equally calm when they were in the false accusation (M = 2.80, 95% CI [2.59, 3.02]) or rightful accusation condition (M = 3.04, 95% CI [2.84, 3.24]), $F(1, 228) = 2.56$, $p = .111$, $\eta^2 = .00$, 95% CI [.00, .02].

Additional Analyses. In the supplemental material, we report the treatment-on-the-treated results – i.e., we restrict the analysis to the 90/109 participants who were actually falsely accused (i.e., the participants in the easy task condition who actually did the task correctly) and the 119/121 participants who were actually rightfully accused (i.e., those in the difficult task condition who actually did the task incorrectly). The pattern of these results are consistent with those reported here.

Discussion

In the context of an experiment with a controlled, real accusation, participants were angrier when they were falsely (versus rightfully) accused, which was associated with felt injustice. The relatively low mean for anger is perhaps due to our use of a minor accusation in order to manipulate an accusation ethically; this makes our test of these differences conservative.

General Discussion

Our research suggests that when observing real or hypothetical angry suspects, working professionals, students, and online samples alike believed them to be guiltier. However, in the context of both real and recalled accusations, people were angrier when they were falsely versus accurately accused. Further, we found these effects reliably in the two sets of studies across formal and informal settings, serious and trivial accusations, the expression versus experience of anger, the timing of the response relative to the accusation, as well as the strength and target of

the anger. Our findings are consistent with the deceit detection literature (Bond & DePaulo, 2006) showing that perceivers are not accurate lie detectors and that they rely on emotional cues from suspects in forming judgments. We contribute to this literature by showing not only that anger is utilized as an invalid cue of guilt, it is a valid cue of innocence. This is particularly important because most research on emotional cues of deception finds little to no association between other discrete emotions and guilt (see Bond & DePaulo, 2006; DePaulo et al., 2003; Vrij, 2008). While scholarship on the psychology of anger posits that the social information it portrays is that there is someone else to blame (van Kleef, 2010), we find that anger in this context (mis)portrays the opposite to others: guilt.

Our work is not without limitations, and questions remain for future research. Our research was not conducted in real courts or with real crimes. Therefore, there could be differences such as sample selection, or contextual issues that affect the expression or perception of anger, which limit its direct application to the criminal justice system. Moreover, we note that our results do not imply that falsely accused individuals are always angrier than accurately accused individuals; indeed, falsely accused individuals may sometimes react calmly in response to a false accusation. Likewise, our results do not imply that anger always leads to perceptions of guilt. Indeed, there are likely to be a multiplicity of additional factors – held constant in our experiments – that moderate the relationships we have documented here. Like all experiments, our findings are limited to the samples and stimuli employed in the research. Therefore, we welcome additional research that tests for the boundaries of our effects, especially in real-world contexts.

Additionally, consistent with the lens model, we note the importance of perception – if observers do not perceive that a suspect is angry, or an accused does not believe themselves to be

innocent, we might not see the same pattern. Furthermore, we do not examine individual differences in subjects and perceivers that might affect the relationships studied, including gender, race, or trait self-control. We also do not know how strategic versus unintentional expressions of anger might affect these dynamics. More research is also needed on the subtleties of emotion regulation in the accusation process, and to understand within-person variance, such as multiple accusations/responses that could occur over time, and other social contextual factors such as the amount of evidence accompanying the accusation. Finally, it would be interesting to examine other contexts, such as within trusting relationships, which could differ from third parties observing others' reactions to accusations of wrongdoing.

There are many reasons to be angry when accused of wrongdoing, but perhaps none as strong as the belief that one has been falsely accused.

References

Averill, J. R. (1983). Studies on anger and aggression. Implications for theories of emotion. *The American Psychologist*, *38*(11), 1145–1160. https://doi.org/10.1037/0003-066X.38.11.1145

Batson, C. D., Kennedy, C. L., Nord, L.-A., Stocks, E. L., Fleming, D. A., Marzette, C. M., … Zerger, T. (2007). Anger at unfairness: Is it moral outrage? *European Journal of Social Psychology*, *37*, 1272–1285. https://doi.org/10.1002/ejsp.434

Berkowitz, L., & Harmon-Jones, E. (2004). Toward an understanding of the determinants of anger. *Emotion*, *4*(2), 107–130. https://doi.org/10.1037/1528-3542.4.2.107

Bond, C. F., & DePaulo, B. M. (2006). Accuracy of deception judgments. *Personality and Social Psychology Review*, *10*(3), 214–234. https://doi.org/10.1207/s15327957pspr1003_2

Brunswik, E. (1952). The conceptual framework of psychology. *Psychological Bulletin*, *49*(6), 654–656.

Côté, S., Hideg, I., & van Kleef, G. A. (2013). The consequences of faking anger in negotiations. *Journal of Experimental Social Psychology*, *49*(3), 453–463. https://doi.org/10.1016/j.jesp.2012.12.015

DePaulo, B. M., Malone, B. E., Lindsay, J. J., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin*, *129*(1), 74–118. https://doi.org/10.1037/0033-2909.129.1.74

DePaulo, B. M., & Morris, W. L. (2004). Discerning lies from truths: Behavioural cues to deception and the indirect pathway of intuition. In P. A. Granhag & L. A. Stromwall (Eds.), *The Detection of Deception in Forensic Contexts* (pp. 15–40). Cambridge, UK: Cambridge University Press.

DePaulo, B. M., & Pfeifer, R. L. (1986). On-the-job experience and skill at detecting deception.

Journal of Applied Social Psychology, *16*(3), 249–267. https://doi.org/10.1111/j.1559-1816.1986.tb01138.x

Dunn, J. R., & Schweitzer, M. E. (2005). Feeling and believing: The influence of emotion on trust. *Journal of Personality and Social Psychology*, *88*(5), 736–748. https://doi.org/10.1037/0022-3514.88.5.736

Ekman, P. (2001). *Telling lies: Clues to deceit in the marketplace, politics, and marriage*. New York, NY: W. W. Norton & Company, Inc.

Ekman, P., & O'Sullivan, M. (1991). Who can catch a liar? *American Psychologist*, *46*(9), 913–920. https://doi.org/10.1037/0003-066X.46.9.913

Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, *12*(2), 121–138. https://doi.org/10.1037/1082-989X.12.2.121

Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, *82*(6), 878–902. https://doi.org/10.1037/0022-3514.82.6.878

Frijda, N. H. (1986). *The emotions*. Cambridge, UK: Cambridge University Press.

Gross, S. R., O'Brien, B., Hu, C., & Kennedy, E. H. (2014). Rate of false conviction of criminal defendants who are sentenced to death. *Proceedings of the National Academy of Sciences*, *111*(20), 7230–7235. https://doi.org/10.1073/pnas.1306417111

Harmon- Jones, E., & Sigelman, J. (2001). State anger and prefrontal brain activity: Evidence that insult-related relative left-prefrontal activation is associated with experienced anger and aggression. *Journal of Personality and Social Psychology*, *80*(5), 797–803.

https://doi.org/10.1037//0022-3514.80.5.797

Higgins, E. T., Rholes, W. S., & Jones, C. R. (1977). Category accessibility and impression formation. *Journal of Experimental Social Psychology*, *13*(2), 141–154. https://doi.org/10.1016/S0022-1031(77)80007-3

John, L. K., Barasz, K., & Norton, M. I. (2016). Hiding personal information reveals the worst. *Proceedings of the National Academy of Sciences*, *113*(4), 954–959. https://doi.org/10.1073/pnas.1516868113

Kraut, R. E., & Poe, D. B. (1980). Behavioral roots of person perception: The deception judgments of customs inspectors and laymen. *Journal of Personality and Social Psychology*, *39*(5), 784–798. https://doi.org/10.1037/0022-3514.39.5.784

Lerner, J. S., & Keltner, D. (2001). Fear, anger and risk. *Journal of Personality and Social Psychology*, *81*(1), 146–159. https://doi.org/10.1037//0022-3514.81.1.146

Peterson, J. L., Ryan, J. P., Houlden, P. J., & Mihajlovic, S. (1987). The uses and effects of forensic science in the adjudication of felony cases. *Journal of Forensic Sciences*, *32*(6), 1730–1753. https://doi.org/10.1520/jfs11231j

Porter, S., & ten Brinke, L. (2009). Dangerous decisions: A theoretical framework for understanding how judges assess credibility in the courtroom. *Legal and Criminological Psychology*, *14*(1), 119–134. https://doi.org/10.1348/135532508X281520

Reisig, M. D., McCluskey, J. D., Mastrofski, S. D., & Terrill, W. (2004). Suspect disrespect toward the police. *Justice Quarterly*, *21*(2), 241–266. https://doi.org/10.1080/07418820400095801

Simmons, J. (2014). MTurk vs. the lab: Either way we need big samples. Retrieved from http://datacolada.org/18

Smith, C. A., Haynes, K. N., Lazarus, R. S., & Pope, L. K. (1993). In search of the" hot" cognitions: Attributions, appraisals, and their relation to emotion. *Journal of Personality & Social Psychology*, *65*(5), 916–929. https://doi.org/10.1037/0022-3514.65.5.916

ten Brinke, L., Vohs, K. D., & Carney, D. R. (2016). Can ordinary people detect deception after all? *Trends in Cognitive Sciences*, *20*(8), 579–588. https://doi.org/10.1016/j.tics.2016.05.012

The jamovi project (2020). jamovi (Version 1.2) [Computer Software]. Retrieved from https://www.jamovi.org.

van Doorn, E. A., Heerdink, M. W., & van Kleef, G. A. (2012). Emotion and the construal of social situations: Inferences of cooperation versus competition from expressions of anger, happiness, and disappointment. *Cognition and Emotion*, *26*(3), 442–461. https://doi.org/10.1080/02699931.2011.648174

van Kleef, G. A. (2009). How emotions regulate social life: The emotions as social information (EASI) model. *Current Directions in Psychological Science*, *18*(3), 184–188. https://doi.org/10.1111/j.1467-8721.2009.01633.x

van Kleef, G. A. (2010). The emerging view of emotion as social information. *Social and Personality Psychology Compass*, *4*(5), 331–343. https://doi.org/10.1111/j.1751-9004.2010.00262.x

Vrij, A. (2008). *Detecting lies and deceit: Pitfalls and opportunities*. Hoboken, NJ: John Wiley & Sons.

Vrij, A., & Granhag, P. A. (2007). Interviewing to detect deception. In S. A. Christianson (Ed.), *Offenders' memories of violent crimes* (pp. 279–304). Hoboken, NJ: John Wiley & Sons.

Watson, D., & Clark, L. A. (1994). *The PANAS-X: Manual for the positive and negative affect*

schedule - expanded form. Ames: The University of Iowa.

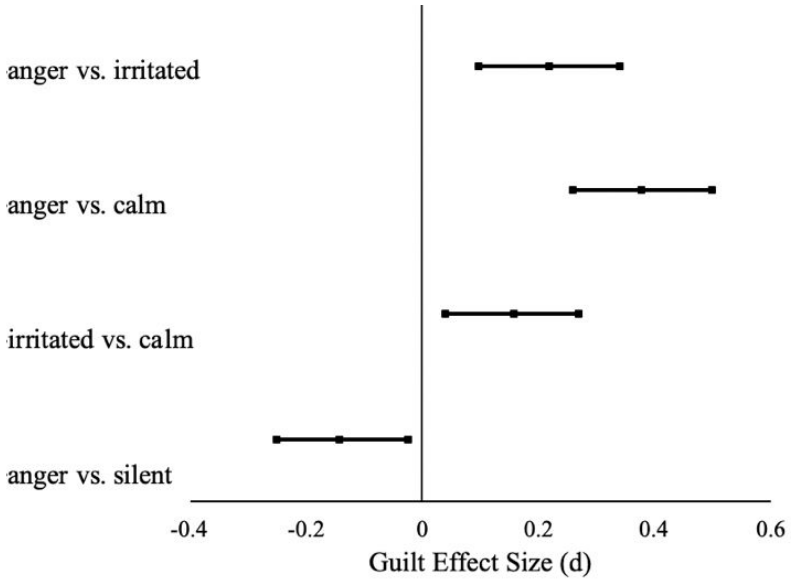

Figure 1. Perceivers interpret suspects' anger as indicative of guilt, meta analytic results (Studies 2A-2C).
Note. Center point is Cohen's *d*. Error bars represent 95% CI on *d*.

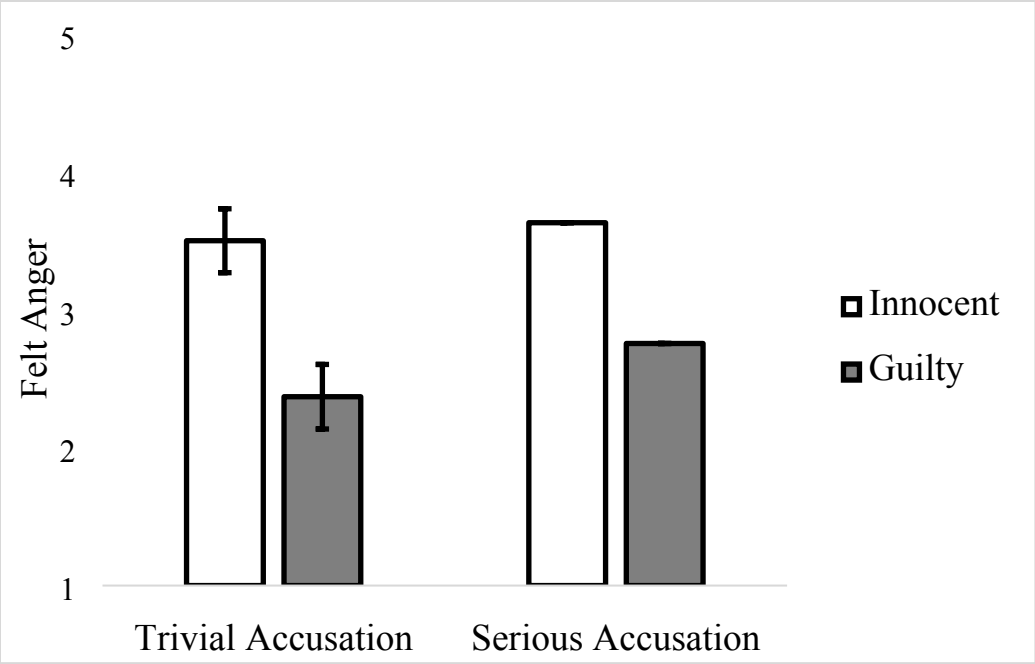

Figure 2. Study 5: Anger is stronger among the innocent versus the guilty—an effect that holds across both trivial and serious accusations.
Note. Error bars represent +/- 1 SE around the mean.