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How emotions affect judgement and decision making in an interrogation scenario

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Purpose. Little research exists on the influence of emotion in forensic settings. To start filling this gap, we used a hypothetical interrogation scenario to examine the effects of emotional state on judgement, decision making, and information-processing style across two separate experiments.

Methods. The participants were induced a specific emotion. Then, they read a scenario where a suspect was arrested and rated (1) the suspect's guilt, and (2) the extent to which they would use a number of tactics to interview the suspect. Based on the feelings-as-information theory and cognitive-appraisal theories of emotion, we predicted that relative to angry or happy participants, sad participants would be less inclined to judge the suspect as guilty (judgement), would show a stronger tendency to select benevolent interrogation tactics and a weaker tendency to select hostile interrogation tactics (decision making), and would be more likely to use an analytic (rather than a heuristic) processing style.

Results. In Experiment 1 (conducted with college students), the judgement hypothesis was supported. In Experiment 2 (with mTurkers), the decision-making hypothesis was supported. A meta-analysis of the two experiments revealed that participants were more willing to select benevolent than hostile interrogation tactics and that, as predicted, sad participants were more willing than angry or happy participants to select benevolent tactics. However, emotion did not affect the participants' tendency to select hostile tactics.

Conclusion. We tested emotion theories in an interrogation scenario. The significant results were consistent with the feelings-as-information and cognitive-appraisal theories of emotion and have practical relevance.

Emotions can be defined as conscious states of subjective feelings that are often accompanied by physiological, cognitive, and behavioural changes (Pessoa, 2013). A well-established view of emotions categorizes them according to two separate dimensions: their valence and their arousal (Posner, Russell, & Peterson, 2005; Russell, 1980). Valence is the intrinsic attractiveness of an emotion; negative-valence emotions are intrinsically

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aversive, while positive-valence emotions are those that organisms actively pursue. Arousal is the readiness of the organism to attend to stimuli. This perspective implies that same-valence emotions produce the same effects on cognition and behaviour.

However, some literature has demonstrated that different emotions within the same valence category (e.g., anger and sadness) produce different effects (e.g., Angie, Connelly, Waples, & Kligyte, 2011; Lench, Flores, & Bench, 2011; Reinhard & Schwarz, 2012). These findings have led to alternative emotion models, such as the *feelings-as-information theory* (Schwarz, 2012). In contrast with the valence-arousal theory, Schwarz (2012) proposes that there are separate *discrete* emotional states (e.g., anger, happiness, sadness, etc.). These emotional states provide information to the individual. For example, *sadness* informs the individual that there is something wrong in their environment and that they should critically think about how best to improve it. This will probably lead the individual to use a systematic, analytic-type processing style. In contrast, *anger* is a reactive state that indicates the person that they can fix the situation if they act quickly. Therefore, anger should lead to heuristic, shallow information processing and quick reactions. These notions have received empirical support (e.g., Bodenhausen, Sheppard, & Kramer, 1994; Reinhard & Schwarz, 2012; Tiedens & Linton, 2001).

According to the feelings-as-information theory, not only can emotions within the same valence category have different effects on cognition and behaviour, but also emotions with different valence categories can have similar effects. Consider *happiness*, which is a positive-valence emotion. Similar to anger, happiness can promote shallow information processing: Because happiness suggests to the individual that all their needs are met, there is no need to deeply analyse the environment. Indeed, Bless *et al*. (1996) found that, compared to people in a state of sadness, those who were happy relied more on scripts and preconceived expectations when recalling memories. Apparently, heuristic-driven information processing can help maintain happiness by avoiding more systematic thinking that could reveal less-pleasant information.

Besides the feelings-as-information theory, cognitive-appraisal theories of emotion (e.g., Lerner & Keltner, 2000; Smith & Ellsworth, 1985) also maintain that discrete emotions differ from each other and that they are related to cognition. These theories posit that it is the cognitive appraisals of the situation what causes a specific emotional response. Appraisals happen along several cognitive dimensions. In particular, Smith and Ellsworth (1985) empirically identified six such dimensions, including pleasantness, self/other responsibility/control, certainty, and situational (vs. personal) control. While the main theoretical framework behind the current study is Schwartz's (2006) feelings-as-information theory, some of our predictions are also consistent with cognitive-appraisal theories.

Models of emotion can be helpful for individuals in a career such as law enforcement, as they experience a gambit of different emotions while carrying out their duties. Three psychological constructs are particularly important for these professionals: judgement, decision making, and information-processing style (e.g., Forgas, 2010).

Judgement

In law enforcement and judicial settings, judgements are made concerning whether a suspect or defendant is guilty or not. A ubiquitous judgement error is the fundamental attribution error (Ross, 1977), also known as correspondence bias (Gilbert & Malone, 1995), which is a pervasive tendency to attribute the behaviour of others to dispositional factors rather than to situational forces.

The fundamental attribution error might be under the influence of emotions. Cognitive-appraisal theories posit that *anger* is connected to the belief that someone other than the self is responsible for a negative event (Lerner & Tiedens, 2006; Smith & Ellsworth, 1985). Consequently, angry individuals might tend to make personal attributions for negative events (e.g., blaming a suspect for a crime; see Bright & Goodman-Delahunty, 2006, for empirical evidence). These theories also suggest that anger is associated with a moderate sense of certainty about what happened (Smith & Ellsworth, 1985). This feeling of certainty might lead angry individuals to process information in a superficial, shallow manner. On the contrary, *sadness* is associated with uncertainty and with the notion that negative events are caused by situational causes beyond personal control (Smith & Ellsworth, 1985). Therefore, sad participants can be expected to attribute negative events to situational (rather than dispositional) forces, and the uncertainty that characterizes sadness should prompt a systematic processing style.

Research supports these contentions. Forgas (1998) found that sad individuals were less likely than happy individuals to attribute behaviours to dispositional factors, and Ask and Granhag (2007) found that while angry participants based their ratings of the reliability of a witness statement on the witness's personal variables only, sad participants based their ratings on both personal and situational variables.

Early guilt attributions might have far-reaching consequences in legal contexts. Leo and Drizin (2010) described how an erroneous guilt attribution might lead interrogators to use highly coercive tactics aimed at a confession. Confessions, whether true or false, are extremely convincing to jurors and can corrupt other forms of evidence (see Kassin, 2012). Thus, an erroneous initial guilt attribution (judgement) can set in motion a chain of events conductive to wrongful conviction of innocent individuals. One goal of the current study was to increase our understanding of this process by exploring the influence of emotions on guilt attribution.

Decision making

Decision making has been defined as 'an information-processing activity . . . that begins with the recognition of a choice situation and ends with the implementation of the choice and the monitoring of its effects' (Jungermann, 2004, p. 569). While judgement only requires evaluation, decision making also requires action.

Most decision-making theories include two separate systems for human choice: a fast, emotion-based system and a slow, cognitive-based system (e.g., Kahneman, 2011). The emotion-based system generally engages in an immediate, automatic manner, while the slow, deliberative system is under conscious control and allows an individual to make more rational decisions, but it requires more time and conscious effort. The fast system surely aided in the survival and propagation of our species, as it allows us to quickly react to stimuli that do not require much forethought (e.g., 'Should I run away from this bear or not?'). The problem is that the fast system frequently shows systematic biases (e.g., Chaiken, Liberman, & Eagly, 1989), such as the confirmation bias.

Confirmation bias is 'the seeking or interpreting of evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand' (Nickerson, 1998, p. 175). For instance, in an interrogation context, an initial (mis)judgement of guilt might lead a detective to use only guilt-presumptive questions, to cut off and disregard the suspect's denials, and to employ coercive techniques oriented to secure a confession. This approach can in turn result in a self-fulfilling prophecy effect (Rosenthal & Jacobson, 1968; Snyder & Swann, 1978), wherein the guilt-presumptive tactics elicit in the suspect

suspicious reactions that can be misinterpreted as signs of guilt (for empirical evidence, see Hill, Memon, & McGeorge, 2008; Kassin, Goldstein, & Savitsky, 2003; Narchet, Meissner, & Russano, 2011).

As explained above, emotions such as anger can foster in interrogators an initial guilt attribution (judgement). In turn, guilt attributions can lead interrogators to use confirmatory strategies (including coercive tactics) in the interrogation room. Besides, the greater sense of certainty experienced by angry (compared to sad) individuals can additionally push them to use coercive tactics. Processing style can also play a role. Cognitive shortcuts such as confirmation bias are more likely to occur when using the emotion-based system (which is related the shallow information-processing strategies mentioned above) than when using the cognitive-based system (which is related to the systematic or analytic processing mode). Recall that anger and happiness induce shallow processing, while sadness induces systematic processing. Because of all these reasons, one would expect angry and happy individuals to use more biased and coercive strategies than sad individuals. We tested this prediction by inducing anger, happiness, and sadness on participants before examining their choice of coercive versus benevolent interrogation tactics.

Information processing

Information processing refers to 'how people select, process, and internalize information and how they use it to make decisions and guide their behavior' (Strickland, 2001, p. 680). We focus on two information-processing styles: a heuristic-based, shallow style and a systematic, analytic-based style.

As the name implies, the *heuristic-based processing style* operates under heuristic processes. Heuristics are general rules of thumb that our brains have developed to speed up processing with reduced cognitive demand (e.g., Kahneman, Slovic, & Tversky, 1982). In complex situations where much information is unavailable and fast decisions must be made, heuristics can lead to accurate or, at least, functional decisions, particularly when the specific heuristic being used is reasonably adapted to the structure of the environment (e.g., Gigerenzer & Gaissmaier, 2011). However, the downside of heuristics is that in many circumstances they can lead to suboptimal, irrational decisions (Tversky & Kahneman, 1974). Conversely, a *systematic, analytic-based style* allows individuals to process stimuli in a thorough manner. But this latter processing style is more cognitively demanding.

Humans can consciously control their processing style. However, emotions can also affect it (e.g., Ask & Granhag, 2007). In a study by Reinhard and Schwarz (2012), sad participants were better able to detect truths and lies than happy participants and participants in a neutral emotion. Mediation analyses revealed that sad participants focused more strongly on verbal cues, which are harder to process but also much more diagnostic of veracity than nonverbal cues. Forgas (2010) asked participants to play the role of a police officer and shoot those (mock) suspects appearing on a computer screen who were holding a gun. Due to stereotypes against Muslims, participants were more likely to shoot Muslim than non-Muslim suspects – even though the former were no more likely to hold a gun. Interestingly, participants in a negative mood showed less anti-Muslim (shooting) bias compared to those in a positive mood. Forgas concluded that the induced emotion altered the participants' cognitive processing, which in turn affected their usage of stereotypes and heuristic processing. Similarly, Bodenhausen *et al*. (1994) found that angry participants relied more on heuristic cues than those in sad and neutral conditions –

specifically, angry participants used racial stereotypes when judging whether a suspect in a case was guilty.

Emotions can still have additional influences in police and legal contexts. In this study, we examined whether sad participants made fewer inferences consistent with socially shared stereotypes about a juvenile offender compared to angry or happy participants.

The present study

Meta-analyses show that discrete emotions have differential effects across a range of physiological and cognitive domains (Angie *et al.*, 2011; Lench *et al.*, 2011). However, little research has been conducted on the influence of emotions in applied contexts. In an attempt to contribute to filling this gap, we focused on a forensic setting (a hypothetical interrogation scenario). We assessed how anger, happiness, and sadness affected the participants' *judgements* of a mock suspect's guilt, their likelihood of using coercive interrogation tactics (*decision making*), and their *processing style* while reviewing a scenario. There were several reasons to select these specific emotions. First, as shown above, extant theoretical frameworks make specific predictions about how each of these emotions should affect judgement, decision making, and processing style. Of note, the predictions of valence-arousal theories differ from those of feeling-as-information and cognitive-appraisal theories; because the influence of emotions on investigative interviewing has not been studied before, we first wanted to test competing basic emotion theories in that particular context, seeking to replicate basic findings obtained in other, more general settings. Second, these particular emotions can be relevant in the interrogation context, as interrogators might be happy to have apprehended a suspect, angry at what the suspect purportedly did, or might feel sad for the victim(s).

Based on previous literature and the feeling-as-information and cognitive-appraisal theories reviewed above, we predicted that relative to angry or happy participants, sad participants would be less inclined to judge the suspect as being guilty (Hypothesis 1), would show a stronger tendency to select benevolent interrogation tactics (Hypothesis 2a) and a weaker tendency to select hostile or coercive interrogation tactics (Hypothesis 2b), and would be more likely to use an analytic rather than a heuristic processing style (Hypothesis 3). Additionally, whenever Hypothesis 1, 2a, or 2b was supported, we reasoned that processing style would probably mediate the effect of emotional state on the dependent variable.

EXPERIMENT 1

Method

Participants

The data were collected through the psychology participant pool at California State University, Fullerton (CSUF). The participants were 137 (Mage = 19.33, SD = 1.85; 66% female; 49% Hispanic) students who received course credit for their participation. They were randomly allocated to the angry (n = 46), happy (n = 46), or sad condition (n = 45).[1]

[1] *Power analyses show that sample size for Experiment 1 was enough to detect a medium effect size* f = *0.27 with power = .80 in the one-way analyses of variance. The required sample size for the interaction predicted in Hypothesis 2 was smaller. Sample size was substantially larger in Experiment 2. In short, both experiments were well-powered.*

Emotion induction procedures

It has been suggested that researchers utilize multiple methods to ensure emotions are induced in participants and that they remain throughout the duration of the experiment (Robinson, Grillon, & Sahakian, 2012). Therefore, we used a combination of methods (videos, writing, and music) that we had pilot tested (see Appendix S1 in the online supporting information). Specifically, the participants first watched a 5-min video (Appendix S2 in the online supporting information). For those in the angry condition, the video displayed two teenagers bullying another teenager; those in the happy condition watched a clip from the comedy series 'Seinfeld', and participants in the sad condition watched a video of a child realizing that his father had passed away. Next, the participants wrote (a minimum of 200 characters) about how they would feel if they were in the position of the main character of the video. Finally, music corresponding to their emotion condition was played in the background as they read through a hypothetical scenario: Individuals in the angry condition listened to George Crumb's 'Black Angels', those in the happy condition to Jackie Wilson's 'Higher and Higher', and participants in the sad condition to Steven Anderson's '24 Preludes, Op. 28 No. 4 in E minor, Largo'.

Materials

We used a written description of a hypothetical scenario, a questionnaire to assess the participants' emotional state, and three additional questionnaires to measure the dependent variables of interest.

Scenario. Participants read through a scenario in which they imagined they were a detective investigating a complaint about a loud party. In the scenario, as they (detectives) arrived at the party location in a poor neighbourhood with high criminal activity, they heard gunshots. Immediately, everyone fled from the party. Participants supposedly found someone who had ran away as the police approached. This suspect was taken to the police station and questioned. Upon further investigation, participants discovered that the suspect had a criminal history and was on probation. Details, such as the suspect's race, sex, and socioeconomic status, were omitted from the scenario to determine how participants were processing the story as a whole. The scenario is available at https://osf.io/gpv8r.

Questionnaires. We asked participants to use a sliding scale (1 = *not at all*, 100 = *intense emotion*) to rate how intensely they experienced each of the six basic emotions: anger, disgust, fear, happiness, sadness, and surprise (Ekman, 1992; Ekman, Friesen, & Ellsworth, 1972).

To examine *judgement*, participants disclosed whether they thought the suspect was guilty on a 1 (*not guilty*) to 8 (*guilty*) scale. To evaluate the participants' *decisions*, we employed 14 questions regarding what strategies participants would utilize to interrogate the suspect (1 = *definitely would not use*; 8 = *definitely would use*). These questions were treated like items in a test, with seven items measuring the participants' willingness to use benevolent tactics and the remaining seven measuring their willingness to use hostile

Table 1. Items that were included in benevolent and hostile interrogation tactics

Benevolent tactics
Appeal to sense of cooperation
Employ active listening skills (e.g., eye contact, nodding, summarize, suspect's statements)
Use similar language as suspect (e.g., slang)
Show concern for the suspect and his/her situation
Identify and meet basic needs
Reduce fears
Show kindness and respect
Hostile tactics
Threaten suspect with consequences for non-cooperation
Do not allow denials from suspect
Misconstrue the suspect's own words
Adopt non-friendly stance
Interrogate while suspect is very stressed
Identify and exaggerate fears
Emphasize your authority and expertise over suspect

tactics (Table 1).[2] Cronbach's alphas were calculated to ensure the two measures were unidimensional (e.g., Anastasi, 1976; Kline, 1986/2015; Nunnally & Bernstein, 1994).

Finally, the participants' *information-processing style* was evaluated with seven questions about those details that were missing from the scenario (the suspects' sex, ethnicity, gang membership, etc.) and three questions about details present in the scenario. Again, these questions were treated as items in a test and their internal reliability was calculated. We reasoned that if participants incorporated false details about the suspect in the scenario, they were likely using heuristic processing. Conversely, if they correctly remembered that the details were not specified, this would suggest analytic processing. The information-processing style questionnaire is available at https://osf.io/gpv8r.

Procedures

This study was approved by the IRB of CSUF. Participants read through an online consent form and agreed to participate prior to data collection. All experimental procedures were delivered online through Qualtrics.com. To avoid attenuating the effects of the induced emotion and/or influencing demand characteristics of participants (Lench *et al.*, 2011; Reinhard & Schwarz, 2012), we disguised the experiment as two distinct studies. 'Study 1' (S1) was described as a study exploring how movies influence emotions, while 'Study 2' (S2) was described as investigating how people make decisions. Participants completed each 'study' sequentially.

Prior to the start of S1, participants rated their emotions on the aforementioned rating scale (baseline rating). Then, participants were told that they would be evaluating how movies affect emotions and were randomly assigned to one of the emotion conditions. They watched the video corresponding to their condition and subsequently wrote about how they would feel if they were in the same situation as the main character of the story. They were then asked how engaged they were for the video and writing tasks. The final

[2] *These tactics were selected from Kelly, Miller, Redlich, and Kleinman's (2013) taxonomy of interrogations tactics used in real-world law-enforcement settings.*

Table 2. Emotion ratings for each condition in experiments 1 and 2

	Emotion Ratings[a]		
Condition	Angry	Happy	Sad
Experiment 1 (College Students)			
Angry	18.35 (33.20)	−7.54 (22.35)	−2.45 (27.98)
Happy	−16.27 (7.40)	23.04 (29.83)	−27.75 (9.03)
Sad	−2.12 (23.51)	−15.84 (14.67)	30.87 (29.04)
Experiment 2 (mTurkers)			
Angry	19.82 (35.08)	−12.38 (26.72)	4.78 (30.46)
Happy	−13.38 (17.25)	20.35 (28.2)	−18.66 (18.66)
Sad	−5.86 (21.69)	−8.68 (29.28)	14.63 (36.18)

Note. [a]Means (*SD*s) are based on the residualized emotion ratings controlling for baseline emotions.

screen informed participants that S1 was completed and that they would move onto 'Study 2'.

At the start of S2, participants were told that the study would evaluate decision making. They were instructed to read through the scenario and imagine that they were the detective. While reading, music corresponding to their emotion condition played in the background. After reading the scenario, the participants completed the above judgement, decision-making, and information-processing questionnaires. Finally, after S2 was completed, the participants rated how they felt (i.e., each of their emotions) during S1, during S2, and how they were feeling currently. These three latter ratings occurred after the conclusion of the experiment (not during S1 or S2) to ensure that the act of rating one's own emotions did not influence the dependent measures (i.e., to avoid demand characteristics). Finally, before being debriefed, participants watched a funny video to mitigate any remaining negative emotion.

Results

Emotion manipulation checks

Manipulation checks confirmed that the participants significantly increased the target emotions. Recall that at the beginning of the experiment, participants rated their emotional state (baseline ratings)[3]. These baseline emotion ratings were regressed onto S1 ratings. The residualized scores served as emotion ratings controlling for participants' baseline emotions and were used as the dependent variable to assess differences between emotion conditions. For the following analyses of variance (ANOVAs), we used planned contrasts to compare the target emotion versus the other two emotions [(2, −1, −1) for angry, (−1, 2, −1) for happy, and (−1, −1, 2) for sad]. As shown in the upper panel of Table 2, while individuals in the angry condition increased angry ratings ($M = 18.35$, $SD = 33.20$), those in the happy ($M = -16.27$, $SD = 7.40$) or sad conditions ($M = -2.12$, $SD = 23.51$) did not, $F(2, 134) = 24.44$, $p < .001$, $\eta_p^2 = .267$, 90% CI [.160, .356]. Similarly, those in the happy condition increased their happiness relative to those in the angry and sad conditions, $F(2, 134) = 35.67$, $p < .001$, $\eta_p^2 = .347$, 90% CI [.236, .433] (see Table 2 for descriptive statistics). Finally, the sad condition increased sad ratings compared to the angry and happy conditions, $F(2, 134) = 69.27$, $p < .001$, $\eta_p^2 = .508$,

[3] *The data set of the two experiments is available at https://osf.io/gpv8r.*

90% CI [.406, .579] (Table 2). Thus, in all cases, the manipulation increased the target emotion compared to the two alternative emotions.

Judgement ratings (guilt attributions)

Participants significantly differed when rating the suspect guilt status, $F(2, 134) = 3.16$, $p = .045, \eta_p^2 = .045$, 90% CI [.001, .105]. A-priori planned contrasts tested the feelings-as-information theory hypothesis [i.e., the sad condition was contrasted against angry and happy (−1, −1, 2), then angry to happy (−1, 1, 0)]. As predicted in Hypothesis 1, happy ($M = 5.11$, $SD = 1.37$) and angry ($M = 5.00$, $SD = 1.48$) participants rated suspects as significantly more guilty than sad participants ($M = 4.42$, $SD = 1.34$), $F(1, 134) = 6.19$, $p = .014$. Angry and happy participants did not differ, $F(1, 134) = 0.14$, $p = .710$.

Decision making (interrogation tactics)

Cronbach's alphas were calculated for the two sets of decisions (i.e., benevolent vs. hostile). After removing one item (*Use similar language as suspect*), reliability for the benevolent decision scale was satisfactory ($\alpha = .79$). The hostile decisions scale had good reliability ($\alpha = .81$). The scores were averaged (rather than summed) to correct for the different number of items per scale. We conducted an emotion (angry vs. happy vs. sad) × decision type (benevolent vs. hostile) mixed-effects ANOVA, with repeated measures in the latter variable, on participants' decision to use the interrogation tactics. The emotion condition main effect was not significant, $F(2, 134) = 0.74$, $p = .480$, $\eta^2 = .011$, 90% CI [.000, .046]. Decision type had a significant effect, $F(1, 134) = 48.60$, $p < .001$, $\eta^2 = .266$, 90% CI [.163, .358]; unsurprisingly, people were more likely to use benevolent ($M = 5.67$, $SD = 1.18$) over hostile ($M = 4.52$, $SD = 1.32$) tactics. However, the interaction was not significant, $F(2, 134) = 0.53$, $p = .589$, $\eta^2 = .008$, 90% CI [.000, .038]; thus, Hypotheses 2a and 2b were not supported.

Information processing (stereotype-based inferences)

We predicted that information-processing style would mediate the relationship between emotion conditions and judgement. Preacher and Hayes's (2004) method for testing mediation through regression was used. The information-processing style questions yielded satisfactory reliability ($\alpha = .84$) after removing three items which had a variance of zero. However, contrary to Hypothesis 3, there was no significant relationship between emotional state and information-processing style, $F(2, 134) = 0.89$, $p = .415$, $\eta_p^2 = .013$, 90% CI [.000, .051]. Nonetheless, we regressed information processing onto judgement, but no significant relationship was revealed, $F(1, 135) = 0.80$, $p = .374$, $\eta^2 = .006$, 90% CI [.000, .045].[4] Additionally, the *Sobel test* was used to formally assess the mediation

[4] *Most participants (n = 126) received two additional sets of information-processing questions. The first set was thought to serve as a less biased processing style measure. It contained five questions similar to the previous information-processing questions; however, they were not closely tied to deeply ingrained societal stereotypes (e.g., the sex and ethnicity of a suspect). These items yielded limited reliability (α = .73, two removed due to lack of variance); therefore, analyses were run separately. The results revealed no significant differences between emotion condition for any of these new questions; largest F(2, 123) = 0.73, p = .484, largest* $\eta_p^2 = .012$. *The second set of questions was the three-item cognitive reflection task (Frederick, 2005; α = .62), which also showed no significant relationship to the participants' emotion condition, F(2, 123) = 0.12, p = .883,* $\eta_p^2 = .002$.

effect as suggested by Preacher and Hayes (2004). The *Sobel test* also indicated no significant mediation effect, $z = -0.21$, $p = .831$.

Discussion

Experiment 1 revealed partial support for our predictions. In line with Hypothesis 1, emotional state affected judgement in a way consistent with theory (Lerner & Tiedens, 2006; Schwarz, 2012; Smith & Ellsworth, 1985) and with previous research (e.g., Ask & Granhag, 2007; Bodenhausen *et al.*, 1994; Forgas, 1998). These findings highlight the importance of emotional state in interrogations. Emotions such as anger (which can probably be expected if the crime was heinous and the suspect seems reluctant to cooperate) can significantly increase guilt attributions compared to sadness.

Yet, contrary to Hypotheses 2a and 2b, we found no significant effect of emotion on decision making. Unsurprisingly, participants preferred benevolent over hostile interrogation tactics, but this tendency did not interact with emotion condition. Furthermore, we found no evidence that information-processing style mediated judgements as proposed by the feelings-as-information theory.

The Experiment 1 participants were college students. Therefore, they were uniformly young, highly educated, and their socioeconomic status was higher than the population average. They were also familiar with psychology. To address these issues, we conducted an additional experiment. Experiment 2 was conducted online through Amazon's Mechanical Turk (mTurk). This granted us access to a larger, more demographically diverse and more representative sample of participants.

EXPERIMENT 2

Method

Three hundred and twenty mTurkers[5] (*M*age = 35.92, *SD* = 11.43; 42% female; 59% Caucasian) participated. They went through the same procedures employed in Experiment 1. The number of individuals allocated to the angry, happy, and sad conditions was 106, 108, and 106, respectively. To ensure accurate responses, we employed validation measures through the mTurk site as well as through our questionnaire. Workers needed to have completed in at least 1,000 assignments with at least a 90% completion rate to participate. Participants also needed to write an open-ended summary of both the (emotion induction) video and the scenario. Open-ended questions were selected to prevent guessing.

Results

Emotion manipulation checks

The manipulation increased the target emotion compared to the two alternative emotions in all cases. Specifically, individuals in the angry condition increased angry ratings, but those in the happy and sad conditions did not, $F(2, 308) = 47.38$, $p < .001$, $\eta_p^2 = .235$,

[5] *While 320 individuals participated in the study, 12 chose not to complete the demographic questions; thus, these calculations are based on 308 participants. Similarly, nine participants chose not to complete the emotion ratings questions administered at the end of the experiment.*

90% CI [.167, .296]; individuals in the happy condition increased their happiness ratings, but those in the angry and sad conditions did not, $F(2, 308) = 42.63, p < .001, \eta_p^2 = .217$, 90% CI [.150, .278]; and participants in the sad condition increased their sadness ratings, but those in the angry and happy conditions did not, $F(2, 308) = 36.14$, $p < .001$, $\eta_p^2 = .190$, 90% CI [.126, .250] (Table 2).

Judgement ratings (guilt attributions)

Emotion condition had no significant effect on guilt ratings, $F(2, 317) = 0.68$, $p = .505$, $\eta_p^2 = 0.004$, 90% CI [.000, .019]. Participants in all conditions responded close to the middle of the 1-to-8 scale (angry: $M = 5.24$, $SD = 1.51$; happy: $M = 5.00$, $SD = 1.46$; sad: $M = 5.11$, $SD = 1.44$).

Decision making (interrogation tactics)

After removing one item (*Use similar language as suspect*), reliability for the benevolent decision scale was acceptable ($\alpha = .81$). The hostile decisions produced good reliability ($\alpha = .86$). The 3 (emotion) × 2 (decision type) mixed-effects ANOVA revealed no main effect of emotion on interrogation tactics selection, $F(2, 317) = 0.41$, $p = .663$, $\eta^2 = .003$, 90% CI [.000, .014]. However, a significant decision type main effect, $F(1, 317) = 74.73$, $p < .001$, $\eta^2 = .191$, 90% CI [.129, .252], revealed that people were more likely to use benevolent ($M = 5.75$, $SD = 1.32$) over hostile ($M = 4.60$, $SD = 1.57$) tactics. This effect was qualified by a significant interaction, $F(2, 317) = 5.17$, $p = .006$, $\eta^2 = .032$, 90% CI [.005, .066] (see Figure 1). Simple-effects analyses indicated that participants were more likely to select benevolent compared to hostile tactics in all emotion conditions (all Fs ≥ 6.72, all ps $\leq .010$). However, planned contrasts assessing Hypotheses 2a and 2b revealed that, for the benevolent tactics, the sad condition ($M = 6.05$, $SD = 1.16$) differed significantly from the angry ($M = 5.42$, $SD = 1.35$) and happy ($M = 5.78$, $SD = 1.39$) conditions, $F(1, 317) = 8.26$, $p = .004$. A similar trend consistent with Hypothesis 2b emerged for the hostile tactics ($M_{Sad} = 4.40$, $SD_{Sad} = 1.61$; $M_{Angry} = 4.82$, $SD_{Angry} = 1.42$; $M_{Happy} = 4.58$, $SD_{Happy} = 1.66$; see Figure 1), but it did not reach significance, $F(1, 317) = 2.62$, $p = .107$. Similarly, angry and happy individuals differed for benevolent decisions, $F(1, 317) = 4.10$, $p = .044$, but not for hostile decisions, $F(1, 317) = 1.32$, $p = .251$ (Figure 1). These findings supported Hypothesis 2a, but not 2b.

Information processing (stereotype-based inferences)

The mediation effect of information-processing style was again tested. The information-processing style questions yielded good reliability ($\alpha = .89$), but there was no relationship between a person's emotional condition and their information-processing style, $F(2, 317) = 0.19$, $p = .829$, $\eta_p^2 = .001$, 90% CI [.000, .008]. Nonetheless, information-processing style was regressed onto both types of decisions. The results showed it did not significantly predict either benevolent decisions, $F(1, 318) = 3.05, p = .082, \eta_p^2 = .009$, 90% CI [.000, .035], or hostile decisions, $F(1, 318) = 2.78, p = .096, \eta_p^2 = .009$, 90% CI [.000, .033]. *Sobel tests* also indicated no mediation effect, $z_{good} = 0.08$, $p = .938$, $z_{bad} = -0.12, p = .901$.

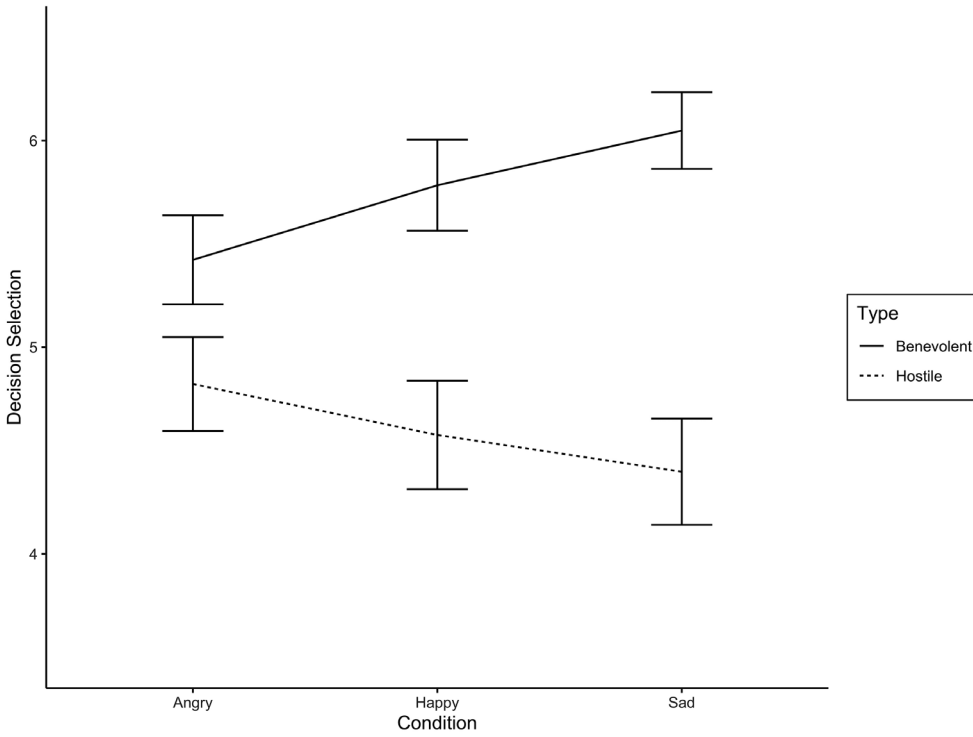

Figure 1. Angry, happy, and sad participants' scores for benevolent and hostile tactics in the decision-making questionnaire in experiment 2 (mTurkers). *Note*. Error bars represent 90% confidence intervals.

Discussion

Like Experiment 1, Experiment 2 yielded significant differences consistent with the feelings-as-information and appraisal theories. However, while in Experiment 1 support was found for Hypothesis 1 (judgement) but not for Hypotheses 2a and 2b (decision making), in Experiment 2 the data did not support Hypothesis 1 but they supported Hypothesis 2a. It is nonetheless noteworthy that out of all the possible patterns of means in the 3 (emotion condition) x 2 (decision type) matrix, the one that emerged in Experiment 2 was as predicted.

Meta-analytical integration of Experiments 1 and 2

We mentioned the differences between our two experiments in terms of the significance of effects. However, an individual study should be conceived as pertaining to a population of studies tracking the same parameter. Because of random variability, research outcomes typically vary among studies (see McShane & Böckenholt, 2017, and the sampling variability of p values across replications of the same experiment has been shown to be extremely large (Cumming, 2008). As stated by Botella and Duran (2019), 'in the context of meta-analysis, we do not consider a non-significant result as a failure of replication, but one more of the values, perfectly compatible with a typical distribution of effects' (p. 351). From this perspective, single-study outcomes might be unreliable; it is the progressive

Table 3. Comparisons between emotion conditions in terms of scores for benevolent and hostile tactics in the decision-making questionnaire across experiments 1 and 2

	Comparison			
Measure	Angry vs. Happy	Angry vs. Sad	Happy vs. Sad	Angry & Happy vs. Sad
Benevolent tactics				
d	0.02	0.31	0.22	0.25
95% CI	−0.27, 0.30	0.03, 0.59	−0.07, 0.50	0.01, 0.50
p	.904	.029	.138	.045
Hostile tactics				
d	−0.10	−0.21	−0.09	−0.14
95% CI	−0.43, 0.22	−0.54, 0.13	−0.43, 0.25	−0.43, 0.15
p	.525	.220	.617	.331

accumulation of experiments examining the same research question that allows researchers to calculate more accurate estimates.

The benefits of meta-analysis to integrate large corpora of studies have long been acknowledged. But these benefits also apply to the combination of only two or three studies (Cumming, 2012; McShane & Böckenholt, 2017). Combining just two studies often results in an estimate that is not only more accurate but also more precise, as the confidence intervals are narrower, which results in an increase in power relative to individual studies (McShane & Böckenholt, 2017). Indeed, meta-analytical combination of only two studies provides conclusions that are more accurate than 'vote-counting' of significant vs. non-significant effects, allowing for a resolution when individual studies yield 'conflicting' results, as nicely illustrated by Cumming (2012, see Chapter 1). Because of all these reasons, it has been suggested that whenever several experiments examining the same phenomenon are reported in a paper, a final single-paper meta-analysis should be the default statistical procedure to integrate the results (McShane & Böckenholt, 2017). Indeed, some recent articles in our field include a meta-analysis of the separate studies at the end (e.g., Ask, Calderon, Mac Giolla, & Reinhard, 2020; Street & Masip, 2015). We examined whether the meta-analytical integration of our two experiments would support Hypotheses 1, 2a, and 2b.

We converted the observed effects into Cohen's *d* and meta-analytically combined them as described by Lipsey and Wilson (2001). Hypothesis 1 was not supported, as no significant differences in guilt attribution were found across emotion conditions (for the sadness vs. anger comparison, $d = 0.19$, 95 % CI [−0.14, 0.52], $p = .262$; for sadness vs. happiness, $d = 0.11$, 95 % CI [−0.20, 0.43], $p = .483$; and for anger vs. happiness, $d = -0.08$, 95% CI [−0.41, 0.25], $p = .621$). As for Hypotheses 2a and 2b, the outcomes are shown in Table 3. Noteworthy, the overall pattern of means aligned well with the hypotheses. However, not all the expected effects were significant. For the benevolent tactics, the difference between angry and happy participants was minute, as expected ($d = 0.02$, $p = .904$), and angry participants significantly differed from sad participants ($d = 0.31$, $p = .029$). The comparison of the combination of angry and happy participants with sad participants also yielded a significant effect size ($d = 0.25$, $p = .045$). Thus, although the effects were small, there was a trend for benevolent tactics consistent with Hypothesis 2a. However, no support emerged for Hypothesis 2b; for hostile tactics, all effect sizes were small ($d \leq |0.21|$) and none reached conventional significance levels.

We also compared the participants' decision to use benevolent vs. hostile tactics separately for each emotion condition. Support for the feelings-as-information theory would be indicated by the effect size for the sad condition being substantially larger than effect sizes for the angry and happy conditions. Results showed that while participants in all conditions were significantly more likely to use benevolent over hostile tactics (all *p*s < .001), for sad participants the difference (d = 1.09, 95% CI [0.80, 1.39]) was much larger than it was for angry (d = 0.63, 95% CI [0.37, 0.89]) and happy (d = 0.79, 95% CI [0.52, 1.05]) participants. These findings align well with the feelings-as-information theory.[6]

GENERAL DISCUSSION

In two experiments, we examined whether emotional state (anger, happiness, sadness) influenced judgement, decision making, and information processing in a forensic-relevant situation. Based on the feelings-as-information theory (Schwartz, 2012) and cognitive-appraisal theories of emotion (Lerner & Keltner, 2000; Smith & Ellsworth, 1985), we predicted that sadness would induce more systematic thinking and would result in more cautious judgements and decisions than would anger and happiness. Experiment 1 was conducted in the laboratory with college students, whereas Experiment 2 was conducted over the Internet with community members.

Judgement and decision making

We found partial support for the hypotheses. Although not all the predicted differences emerged, all the significant effects were as predicted. In Experiment 1, we found, as expected, a stronger tendency among angry and happy participants (compared to sad participants) to consider the suspect as guilty (Hypothesis 1). Initial guilt attributions can have devastating consequences for innocent suspects (Hill *et al.*, 2008; Kassin *et al.*, 2003; Leo & Drizin, 2010; Narchet *et al.*, 2011), and Experiment 1 suggested that the interrogator's emotions may play a role in this process. However, this effect did not emerge in Experiment 2. In Experiment 2, the emotion by kind of tactic interaction predicted in Hypothesis 2 was significant. Planned contrasts revealed support for Hypothesis 2a, showing that sad participants were indeed more willing than angry or happy participants to use benevolent interrogation tactics. However, no support was found for the additional prediction that sad participants would be less willing (relative to angry or happy participants) to use hostile tactics (Hypothesis 2b).

Because due to random variability alone research outcomes across individual studies often vary, yielding seemingly inconsistent results in terms of statistical significance (e.g., Botella & Duran, 2019; Cumming, 2008; McShane & Böckenholt, 2017), we used meta-analysis to combine the data of the two experiments. This would allow us to test our

[6] *Because analytic approaches developed to conduct large-scale meta-analyses may not be well suited for single-paper meta-analyses (McShane & Böckenholt, 2017), we additionally employed McShane and Böckenholt's methodology. The outcomes were similar to those reported in the text: Regarding* judgement*, no significant effects were found supporting Hypothesis 1. Concerning* decision making*, sad participants were more willing than participants who were either angry or happy to select benevolent tactics by 0.35 points, 95% CI [0.11, 0.58],* p = .004 *(which supports Hypothesis 2a); however, the effect was not significant for hostile tactics (Hypothesis 2b), with an estimate of −0.22, 95% CI [−0.52, 0.07],* p = .138*. Finally, while participants were generally more likely to use benevolent over hostile tactics, the effect was larger for sad (1.56, 95% CI [1.19, 1.93],* p < .001*) than for angry and happy participants (0.99, 95% CI [0.75, 1.23],* p < .001*). Analyses are available at https://osf.io/gpv8r.*

hypotheses with more precision and accuracy. The meta-analysis provided no support for either Hypothesis 1 (judgement) or Hypothesis 2b (hostile tactics), but Hypothesis 2a (benevolent tactics) was supported.

Our data also showed that the participants were much more willing to use benevolent than hostile tactics. This large effect, which emerged in both experiments and in the meta-analysis, suggests a possible explanation for the null effect concerning Hypothesis 2b. Specifically, the participants' reluctance to use hostile tactics might overcome any potential moderation effect of emotional state. On the other hand, participants were more willing to use benevolent tactics; since these tactics may look innocuous to them, there is room for emotional state to moderate its use.

Also, despite the little variation across emotion condition for the hostile tactics, the effect size for the difference between the participants' willingness to use benevolent over hostile tactics was considerably larger among sad participants than among angry or happy participants. This outcome clearly supports the feelings-as-information theory and is contrary to the valence-arousal theory, which predicted identical effects of sadness and anger. In summary, the overall pattern of results for decision making (interrogation tactic selection) was generally consistent with the theory, but the effects were caused by differences in the willingness to use only benevolent (and not hostile) tactics.

The evidence that the participants were much less willing to use hostile than benevolent tactics (with effect sizes ranging from $d = 0.63$ to $d = 1.09$) and that the willingness to use hostile tactics was not under the influence of emotional state are good news for those concerned with the dangers of suspects being submitted to abusive interrogation practices. However, replications using law-enforcement officers (instead of college students and community members) as participants and asking them to actually conduct an interrogation (rather than to complete a questionnaire) are necessary before drawing strong conclusions of relevance for field settings.

The variations in outcome effects between Experiment 1 and 2 are not unusual in the behavioural sciences (see Botella & Duran, 2019; McShane & Böckenholt, 2017) and may result from either procedural or demographic moderators. While participants in Experiment 1 were in a controlled laboratory setting, those in Experiment 2 completed the tasks online. These procedural differences may have influenced the intensity of the emotional experience. However, manipulation checks indicated that both groups were successfully induced into their emotional states relative to their own baseline measures. Therefore, the alternative hypothesis that differences arose due to demographic differences appears more plausible. Introductory psychology majors can be well educated and come from a higher socioeconomic background than community samples. Moreover, our online community sample was more diverse and older than our college sample. It is possible that these demographic differences led to differences in our outcome measures.

Information-processing style

Our prediction that, compared to angry or happy participants, sad participants would display a weaker tendency to assume that information missing from the scenario was actually present was not supported. Across all conditions in both experiments, most participants unwittingly made inferences to fill in the information gaps in the scenario. Also, this measure did not mediate the influence of emotional state on judgement and decision making. One possible explanation is that some of the questions evoked biases that are so deeply ingrained in our culture that they could not be overcome by emotion –

and by extension produced no differential effects. For example, it is plausible that our general schema of a suspect is male, and this stereotype may be so strong that the emotion manipulation may not have been intense enough to overcome it.[7] However, 126 participants in Experiment 1 received several questions that measured information-processing style in a way that was not tied to stereotypes and schemas, and these questions also revealed no differences between emotion conditions. Still, these null results do not refute the notion that information processing was the underlying process behind the significant effects; rather, they suggest that the instrument we used to measure information processing may not be sensitive enough.

The poor sensitivity of our instrument may stem from the fact that people generally do not recall verbal information the way it was exactly presented. Instead, people normally believe that information available only by implication during the stimulus-presentation phase was actually presented (e.g., Harris & Monaco, 1978; Harris, Teske, & Ginns, 1975; Johnson, Bransford, & Solomon, 1973). Individuals also reconstruct the original information such that it is consistent with the activated schema (e.g., the schema of an offender, or of a crime); gaps are filled, and ambiguities are resolved based on the schema (see, e.g., Bartlett, 1932; Pichert & Anderson, 1977; Shank & Abelson, 1977). The current study shows that these tendencies are so strong that our emotional induction was not enough to overcome them.

One could also argue that our theoretical framework is not an accurate model for how emotion affects cognition. However, it seems unlikely that the theory would accurately predict the direction found while having the proposed mechanism completely unrelated. Moreover, previous studies linked information-processing style to cognitive differences based on various emotional states (e.g., Ask & Granhag, 2007; Reinhard & Schwarz, 2012). Yet, in a recent meta-analysis, McKasy (2020) compared anger with sadness and happiness in terms of information processing depth and found overall effect sizes close to zero. However, heterogeneity was large, with effect sizes of individual studies spreading across a wide range of values (−1.11 to 0.86 for the comparison with sadness, and −1.24 to 1.67 for the comparison with happiness). Thus, although across all studies the effect is close to zero, under some conditions it is strong and positive, while under some other conditions it is strong and negative. Research has yet to identify the relevant moderators.

We believe that it is still possible that information-processing style may serve as the mechanism for the influence of emotion on decision making; however, by the time participants reached the information-processing style questions at the very end of the experiment, the effects of the emotion manipulation might have worn off. Indeed, manipulation check data revealed a significant increase in target emotions during S1, but these elevated emotional states did not persist through the end of the second study.

Emotion induction

Although previous research has provided strong evidence for discrete emotional states (Lench *et al*., 2011), researchers have had limited success in eliciting discrete emotions (Robinson *et al*., 2012). Our pilot tests (see Appendix S1 in the online supporting information) and the two experiments described herein indicated that our method for eliciting anger, happiness, and sadness was successful. We provide researchers with a

[7] *Yet, while for some questions (e.g., gender) the participants' assumptions were in line with the stereotype of a young offender, for several others (e.g., 'The suspect did drugs') they were not. Feel free to contact the authors for more information.*

new, empirically verified technique for inducing emotional states. We strongly encourage emotion researchers to use it. Additionally, our findings demonstrated that same-valence emotions can produce different effects on our cognitive processes. These outcomes are consistent with recent meta-analytic studies suggesting that there are discrete emotion categories (Angie *et al.*, 2011; Lench *et al.*, 2011).

Limitations and future research directions

This study is not without limitations. First, readers can wonder why we examined the impact of anger, happiness, and sadness rather than of other emotions that might be relevant in investigative and legal contexts, such as disgust, fear, outrage, or sympathy.[8] While we agree that emotions other than those that we examined are relevant in investigative contexts, we also believe that interrogators can feel anger towards the suspect (because of the nature or seriousness of the offence, because the suspect's refusal to cooperate, etc.), happiness (to have apprehended a suspect, because the suspect cooperates and/or provides valuable information, etc.), and sadness for the victim. Furthermore, since the influence of emotions on investigative interviewing has not been studied before, we first need to test basic emotion theories in this particular context, seeking to replicate the findings from other domains. The influence of anger, happiness, and sadness on judgement, decision making, and information-processing style is based on solid theory (thus allowing for very specific predictions) and has been tested in other domains. Further, feelings-as-information/cognitive-appraisal theories on one side and valence-arousal theories on the other side lead to different prediction across these three emotions. After basic, theory-grounded effects are replicated, research can move on to running more ecologically valid studies where additional emotions specific to investigative contexts are included in the design.

Second, a limitation of our paradigm is that the emotion manipulation may not have persisted throughout the entire duration of the experiment, which may help explain why emotions did not affect information processing. New procedures should be developed to extend the length of the emotion manipulation. Alternatively, the order of the questions could be reversed such that the information-processing style questionnaire were presented first, followed by the decision making and judgement questions. This ordering would ensure that the effects of emotion are still present while answering the information-processing style questions. If, under these circumstances, emotion condition still has no effect on information processing, then the short-lived emotion manipulation can be eliminated as a possible explanation for the null results on the information-processing measure. Also, researchers should ensure that the instrument used to measure information-processing style is sensitive enough.

A third limitation is that we used imagined scenarios and civilians. The findings could differ if the individuals were actually living the scenario. Furthermore, police detectives may have different emotion regulation strategies or response tendencies compared to the general public (e.g., detectives can have a stronger inclination to use hostile tactics due to formal or informal training or to police culture). These regulation strategies and response tendencies may make them less vulnerable to the emotion-based effects. This study should be replicated with law-enforcement officers, and under more naturalistic conditions.

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[8] *Some of these latter emotions, along with anger and sadness, have been studied – though only rarely – in the context of jury decision making (see Bright & Goodman-Delahunty, 2006; Hastie, 2001).*

More generally, law-enforcement officers often need to have heightened cognitive abilities. They are frequently in situations where the consequences of not employing systematic reasoning can be severe (e.g., arresting an innocent and letting the perpetrator free). Yet, there is a dearth of research exploring the impact of emotions on decision making in legal contexts (for some extant studies, see Ask & Granhag, 2007; Bornstein & Wiener, 2010; Reinhard & Schwarz, 2012). Given the relevance and far-reaching personal and legal consequences of decisions made in these contexts, future research on the topic is necessary.

Conclusions

Based on the feelings-as-information theory and cognitive-appraisal theories of emotion, we predicted that, relative to angry or happy participants, sad participants in an interrogation scenario would: (1) judge the suspect as less guilty (judgement), (2) show a stronger tendency to select benevolent interrogation tactics, (3) display a weaker tendency to select hostile interrogation tactics (decision making), and (4) be more likely to use an analytic rather than a heuristic information-processing style. While support was found for the guilt-judgement prediction in Experiment 1, the meta-analytic integration of the two experiments revealed only small, non-significant effects. The meta-analysis also revealed that sad participants had a stronger tendency than angry and happy participants to select benevolent interrogation tactics. However, the emotion manipulation had no effect on the tendency to select hostile tactics. Probably, since participants in all conditions were generally reluctant to use hostile tactics, little room was left for emotions to have any impact. Finally, we found no impact of the emotion manipulation on information processing, probably because the instrument used to measure it was not sensitive enough, and/or because by the time this measure was taken, the emotions had faded away. Future research should try to replicate these findings employing law-enforcement officers as participants and having them conduct real interviews. Field studies examining the impact of the interviewer's emotional state on interrogation tactics of real suspects would also be welcome.

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Conflicts of interest

All authors declare no conflict of interest.

Author contributions

Deshawn Sambrano (Data curation; Formal analysis; Investigation; Writing – original draft) Jaume Masip (Conceptualization; Formal analysis; Investigation; Methodology; Writing – review & editing) Iris Blandon-Gitlin (Conceptualization; Data curation; Methodology; Project administration; Resources; Supervision).

References

Anastasi, A. (1976). *Psychological testing* (4th ed.). New York, NY: Macmillan.

Angie, A., Connelly, S., Waples, E., & Kligyte, V. (2011). The influence of discrete emotions on judgement and decision-making: A meta-analytic review. *Cognition & Emotion*, *25*, 1393–1422. https://doi.org/10.1080/02699931.2010.550751

Ask, K., Calderon, S., Mac Giolla, E., & Reinhard, M.-A. (2020). Approach, avoidance, and the perception of credibility. *Open Psychology*, *2*, 3–21. https://doi.org/10.1515/psych-2020-0002

Ask, K., & Granhag, P. A. (2007). Hot cognition in investigative judgments: The differential influence of anger and sadness. *Law and Human Behavior*, *31*, 537–551. https://doi.org/10.1007/s10979-006-9075-3

Bartlett, F. C. (1932). *Remembering*. Cambridge, UK: Cambridge University Press.

Bless, H., Clore, G. L., Schwarz, N., Golisano, V., Rabe, C., & Wölk, M. (1996). Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology*, *71*, 665–679. https://doi.org/10.1037/0022-3514.71.4.665

Bodenhausen, G. V., Sheppard, L. A., & Kramer, G. P. (1994). Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology*, *24*, 45–62. https://doi.org/10.1002/ejsp.2420240104

Bornstein, B. H., & R. L. Wiener (Eds.) (2010). *Emotion and the law. Psychological perspectives*. New York, NY: Springer.

Botella, J., & Duran, J. I. (2019). A meta-analytical answer to the crisis of confidence of psychology. *Anales de Psicologia*, *35*, 350–6. https://doi.org/10.6018/analesps.35.2.345291

Bright, D. A., & Goodman-Delahunty, J. (2006). Gruesome evidence and emotion: Anger, blame, and jury decision-making. *Law and Human Behavior*, *30*, 183–202. https://doi.org/10.1007/s10979-006-9027-y

Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212–252). New York, NY: Guilford Press.

Cumming, G. (2008). Replication and *p* intervals: *p* values predict the future only vaguely, but confidence intervals do much better. *Perspectives on Psychological Science*, *3*, 286–300. https://doi.org/10.1111/j.1745-6924.2008.00079.x

Cumming, G. (2012). *Understanding the new statistics. Effect sizes, confidence intervals, and meta-analysis*. New York, NY: Routledge.

Ekman, P. (1992). Facial expressions of emotion: New findings, new questions. *Psychological Science*, *3*, 34–8. https://doi.org/10.1111/j.1467-9280.1992.tb00253.x

Ekman, P., Friesen, W. V., & Ellsworth, P. (1972). *Emotion in the human face: Guidelines for research and an integration of findings*. Oxford, UK: Pergamon Press.

Forgas, J. P. (1998). On being happy and mistaken: Mood effects on the fundamental attribution error. *Journal of Personality and Social Psychology*, *75*, 318–331. https://doi.org/10.1037/0022-3514.75.2.318

Forgas, J. P. (2010). Affect in legal and forensic settings: The cognitive benefits of not being too happy. In B. H. Bornstein & R. L. Wiener (Eds.), *Emotion and the law. Psychological perspectives* (pp. 13–44). New York, NY: Springer. https://doi.org/10.1007/978-1-4419-0696-0_2

Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic Perspectives*, *19*, 25–42. https://doi.org/10.1257/089533005775196732

Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic decision making. *Annual Review of Psychology*, *62*, 451–482. https://doi.org/10.1146/annurev-psych-120709-145346

Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin*, *117*, 21–38. https://doi.org/10.1037/0033-2909.117.1.21

Harris, R. J., & Monaco, G. E. (1978). Psychology of pragmatic implication: Information processing between the lines. *Journal of Experimental Psychology: General*, *107*, 1–22. https://doi.org/10.1037/0096-3445.107.1.1

Harris, R. J., Teske, R. R., & Ginns, M. J. (1975). Memory for pragmatic implications from courtroom testimony. *Bulletin of the Psychonomic Society*, *6*, 494–496. https://doi.org/10.3758/BF03337547

Hastie, R. (2001). Emotions in juror's decisions. *Brooklin Law Review*, *66*, 991–1009.

Hill, C., Memon, A., & McGeorge, P. (2008). The role of confirmation bias in suspect interviews: A systematic evaluation. *Legal and Criminological Psychology*, *13*, 357–371. https://doi.org/10.1348/135532507X238682

Johnson, M. K., Bransford, J. D., & Solomon, S. K. (1973). Memory for tacit implications of sentences. *Journal of Experimental Psychology*, *98*, 203–205. https://doi.org/10.1037/h0034290

Jungermann, H. (2004). Decision making. In C. Spielberger (Ed.), *Encyclopedia of applied psychology* (pp. 569–74). Boston, MA: Academic Press.

Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY: Farrar, Straus and Giroux.

Kahneman, D., P. Slovic, & A. Tversky (Eds.) (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge, UK: Cambridge University Press.

Kassin, S. M. (2012). Why confessions trump innocence. *American Psychologist*, *67*, 431–445. https://doi.org/10.1037/a0028212

Kassin, S. M., Goldstein, C. C., & Savitsky, K. (2003). Behavioral confirmation in the interrogation room: On the dangers of presuming guilt. *Law and Human Behavior*, *27*, 187–203. https://doi.org/10.1023/A:1022599230598

Kelly, C. E., Miller, J. C., Redlich, A. D., & Kleinman, S. M. (2013). A taxonomy of interrogation methods. *Psychology, Public Policy, and Law*, *19*, 165–178. https://doi.org/10.1037/a0030310

Kline, P. (2015). *A handbook of test construction: Introduction to psychometric design*. New York, NY: Routledge. (Original work published 1986 by Methuen).

Lench, H. C., Flores, S. A., & Bench, S. W. (2011). Discrete emotions predict changes in cognition, judgment, experience, behavior, and physiology: A meta-analysis of experimental emotion elicitations. *Psychological Bulletin*, *137*, 834–855. https://doi.org/10.1037/a0024244

Leo, R. A., & Drizin, S. A. (2010). The three errors: Pathways to false confession and wrongful conviction. In D. G. Lassiter & C. Meissner (Eds.), *Police interrogations and false confessions: Current research, practice, and policy recommendations* (pp. 9–30). Washington, DC: American Psychological Association. https://doi.org/10.1037/12085-001

Lerner, J. S., & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgement and choice. *Cognition & Emotion*, *14*, 473–493. https://doi.org/10.1080/026999300402763

Lerner, J. S., & Tiedens, L. Z. (2006). Portrait of the angry decisionmaker: How appraisal tendencies shape anger's influence on cognition. *Journal of Behavioral Decision Making*, *19*, 115–137. https://doi.org/10.1002/bdm.515

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.

McKasy, M. (2020). A discrete emotion with discrete effects: effects of anger on depth of information processing. *Cognitive Processing*, https://doi.org/10.1007/s10339-020-00982-8.

McShane, B. B., & Böckenholt, U. (2017). Single-paper meta-analysis: Benefits for study summary, theory testing, and replicability. *Journal of Consumer Research*, *43*, 1048–1063. https://doi.org/10.1093/jcr/ucw085

Narchet, F. M., Meissner, C. A., & Russano, M. B. (2011). Modeling the influence of investigator bias on the elicitation of true and false confessions. *Law and Human Behavior*, *35*, 452–465. https://doi.org/10.1007/s10979-010-9257-x

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomena in many guises. *Review of General Psychology*, *2*, 175–220. https://doi.org/10.1037/1089-2680.2.2.175

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.

Pessoa, L. (2013). *The cognitive-emotional brain: From interactions to integration*. Cambridge, MA: The MIT Press.

Pichert, J. W., & Anderson, R. C. (1977). Taking different perspectives on a story. *Journal of Educational Psychology*, *69*, 309–315. 1037/0022-0663.69.4.309

Posner, J., Russell, J. A., & Peterson, B. S. (2005). The circumplex model of affect: An integrative approach to affective neuroscience, cognitive development, and psychopathology. *Development and Psychopathology*, *17*, 715–734. https://doi.org/10.1017/S0954579405050340

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*, 717–731. https://doi.org/10.3758/BF03206553

Reinhard, M.-A., & Schwarz, N. (2012). The influence of affective states on the process of lie detection. *Journal of Experimental Psychology: Applied*, *18*, 377–389. https://doi.org/10.1037/a0030466

Robinson, O. J., Grillon, C., & Sahakian, B. J. (2012). The mood induction task: A standardized, computerized laboratory procedure for altering mood state in humans. *Protocol Exchange*, *10*, 1–17. https://doi.org/10.1038/protex.2012.007

Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectation and pupils' intellectual development*. New York, NY: Holt, Rinehart, & Winston.

Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, Vol. *10* (pp. 173–220). San Diego, CA: Academic Press.

Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, *39*, 1161–1178. https://doi.org/10.1037/h0077714

Schank, R. C., & Abelson, R. (1977). *Scripts, plans, goals, and understanding: An inquiry into human knowledge structures*. Oxford, UK: Lawrence Erlbaum.

Schwarz, N. (2012). Feelings-as-information theory. In P. A. M. Van Lange, A. W. Kruglanski & E. T. Higgins (Eds.), *Handbook of theories of social psychology*, Vol. *1* (pp. 289–308). Thousand Oaks, CA: Sage.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, *48*, 813–838. https://doi.org/10.1037/0022-3514.48.4.813

Snyder, M., & Swann, W. B. (1978). Hypothesis-testing processes in social interaction. *Journal of Personality and Social Psychology*, *36*, 1202–1212. https://doi.org/10.1037/0022-3514.36.11.1202

Street, C. N. H., & Masip, J. (2015). The source of the truth bias: Heuristic processing? *Scandinavian Journal of Psychology*, *56*, 254–263. https://doi.org/10.1111/sjop.12204

Strickland, B. R. (2001). Glossary. In B. R. Strickland (Ed.), *The Gale encyclopedia of psychology* (2nd ed.) (pp. 675–686). Farmington Hills, MI: Gale.

Tiedens, L. Z., & Linton, S. (2001). Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology*, *81*, 973–988. https://doi.org/10.1037/0022-3514.81.6.973

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*, 1124–1131. https://doi.org/10.1126/science.185.4157.1124

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Supporting Information

The following supporting information may be found in the online edition of the article:

Appendix S1. Pilot studies.
Appendix S2. Description of and links to emotion induction videos.