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Investigating the Effects of Anger and Guilt on Unethical Behavior: A Dual-Process Approach

Daphna Motro¹ · Lisa D. Ordóñez² · Andrea Pittarello³ · David T. Welsh⁴

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Abstract Although emotion has become one of the most popular research areas within organizational scholarship, few studies have considered its connection with unethical behavior. Using dual-process theory, we expand on the rationalist perspective within the field of behavioral ethics by considering the process through which two discrete emotions, anger and guilt, influence unethical behavior. Across two studies using different methodologies, we found that anger increases unethical behavior whereas guilt reduces unethical behavior. These effects were mediated by impulsive and deliberative processing. Overall, our results shed light on distinct mechanisms through which emotions can influence unethical behavior. Both theoretical and practical implications are discussed.

Keywords Anger · Guilt · Emotions · Behavioral ethics · Unethical behavior · Dual processing

Introduction

As the cost of unethical behavior in organizations has risen to hundreds of billions of dollars per year in the United States alone (Ariely 2008), there has been increased interest in understanding the drivers of unethicality from both researchers and practitioners. Recent work suggests that unethical behavior may often result from non-rational processes (Bazerman 2014; Bazerman and Tenbrunsel 2011; Kish-Gephart et al. 2010; Pittarello et al. 2015a), and a rapidly developing literature related to emotion has demonstrated the importance of non-rational, intuitive processes in shaping a variety of key workplace outcomes (Elfenbein 2007). Here, we build upon these findings by examining the relationship between emotions and ethics.

As emotions are universal and common (Ashkanasy 2003), pervading nearly every aspect of human life and are fundamental to both basic survival and social interaction (Ekman 1999; Fredrickson 2001; Lazarus 1991), it is important to understand the mechanisms through which emotions can influence unethical behavior. A recent review noted that “much remains to be learned about the complex effects of emotions and even more about what these effects mean for (un)ethical behavior in organizations” (Treviño et al. 2014, p. 651–652). We propose that dual-process theory (Evans 2008) is a perspective that bridges the gap between affective and cognitive processes and provides insight into how certain emotions influence unethical behavior.

In this work, we chose to focus on anger and guilt, since our theoretical approach (Evans 2008) and previous

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empirical findings (e.g., Bodenhausen et al. 1994; Joireman 2004) suggest that these emotions will differentially affect processing and unethicality. Specifically, we predict that anger, one of the most frequently experienced emotions (Averill 1982), will operate through intuitive, automatic processes to increase unethical behavior due to its association with impulsivity. Although emotions are sometimes assumed to influence behavior exclusively through intuitive processes, we predict that guilt will operate through careful, deliberate processes to reduce unethical behavior due to its association with reflection, demonstrating that emotions are not exclusively associated with intuitive processing.

Our work offers several contributions to the literature. First, it examines how state emotions (i.e., how individuals feel right now), as opposed to trait emotions (i.e., how individuals feel in general), impact dishonesty (Gaudine and Thorne 2001; Spielberger et al. 1970). The relatively weak relationships identified between most trait emotions and a subsequent hypothetical ethical decision-making task (e.g., Connelly et al. 2004) raises the question as to whether salient state emotions, as opposed to distal trait emotions, might be more influential in altering unethical decisions. Examining state emotions warrants consideration, as an intense and visceral emotional episode can have powerful effects on unethical behavior in certain situations (Loewenstein 2000) that would likely go undetected with a broad trait measure of emotion.

An additional contribution is that our work considers behavioral—as opposed to hypothetical—measures of unethicality across two studies. As past researchers have noted, the relationship between predictor variables and hypothetical unethical decisions is often weaker than the relationship between predictor variables and actual unethical behavior (Hannah et al. 2013; Kish-Gephart et al. 2010; Welsh and Ordóñez 2014a). Several past articles connecting emotion and ethics have focused exclusively on hypothetical measures of unethical behavior (e.g., Schweitzer and Gibson 2008; Thiel et al. 2011). While undoubtedly informative, such results give limited insight into how someone might actually behave in a given situation. Often, unethical behavior is not carefully planned out ahead of time. Rather, it can frequently be the result of an immediate impulse carried out in the heat of the moment. For example, in 1859 U.S. Congressman Daniel Sickles was the first defendant to plead temporary insanity in court after killing his wife's lover in an intense and impulsive fit of anger (Eicher 2001). Today, the U.S. and many other nations throughout the world recognize emotion as a potential mitigating factor for unethical acts. An example is a crime of passion in which a violent act is committed by someone because of a sudden strong impulse such as rage rather than as a premeditated, carefully reasoned decision

(Dressler 1982). Reducing unethical behaviors, such as illegal acts, are of great interest to organizations, since their consequences can damage both individuals and society at large. If we can better understand how emotions affect ethics, we can help managers and policy makers in designing interventions that can reduce dishonesty in the workplace.

Finally, by examining state emotions, we also advance beyond examining merely the valence (i.e., negativity vs. positivity) or whether the emotion is more active or passive (Connelly et al. 2004). Several researchers have shown that emotions similar in valence (e.g., negative) can lead to different effects on dependent variables (Dunn and Schweitzer 2005; Kugler et al. 2012; Lerner and Keltner 2001; Raghunathan and Pham 1999). As Smith and Ellsworth (1985) demonstrate, emotions are multifaceted, and thus the consideration of specific emotions may often provide additional insight over considerations of valence or intensity alone.

Existing research on emotion in organizations has focused on integral emotions in response to specific situations as opposed to how incidental emotions may influence behavior more broadly (Allred et al. 1997; Baron et al. 1990; Mellers et al. 1997; Pillutla and Murnighan 1996). Integral emotions are those arising from the present situation, decision or judgment, while incidental emotions are those arising from outside the present situation (Lerner and Keltner 2000). Although work on integral emotions certainly provides insight into the relationship between emotions and ethics, our question of interest remains unanswered: How do certain incidental emotions affect unethical behavior? Addressing this question is important for at least two reasons. First, incidental emotions can spill over unexpectedly and affect subsequent behaviors that are completely unrelated to the situation that triggered the emotion. Second, examining incidental emotions provides a cleaner test of their effects on subsequent behavior. Any changes in subsequent behaviors would be due to the emotion that directly preceded it and not to whatever situation triggered that emotion. Thus, could it be that two distinct emotions such as anger and guilt spill over unexpectedly and affect unethical behavior in situations that are completely unrelated to the situation that triggered the emotion? By identifying antecedents of unethical behavior that permeate everyday life, we can better understand ways through which both researchers and practitioners can reduce instances of unethical behavior in organizations. Given the desire to avoid both the monetary (Aquino et al. 1999) and psychological (Filipczak 1993) costs of unethicality, this goal is particularly relevant. Thus, we seek to contribute to previous research on anger and guilt by considering their effects as incidental emotions that

spill over across domains to influence unrelated moral behaviors.

Dual Processing and Unethical Behavior

Broadly, dual-process theory refers to two distinct ways in which people can process information: impulsively, intuitively, automatically, and rapidly (oftentimes referred to as “System 1”) or thoughtfully, reflectively, deliberately, and slowly (oftentimes referred to as “System 2”; Evans and Stanovich 2013; Strack and Deutsch 2004; Welsh and Ordóñez 2014a). For example, when taking an exam, a student could respond immediately and impulsively with the first answer that comes to mind. Alternatively, the student could question his or her initial intuition, carefully consider each choice, and respond carefully after substantial deliberation. Kahneman (2011) describes these two processes in terms of thinking “fast” and “slow,” respectively, and connects dual processing to a variety of organizational decision-making outcomes, such as risk-taking.

Dual-process theory has influenced the field of emotion research with some scholars suggesting that emotion primarily influences decision making through fast and intuitive processing. For example, a particular decision may elicit strong emotions that create an “affective heuristic” (or gut feeling) that drives how an individual will respond. Similarly, Cummins and Cummins (2012) suggest that moral judgment is a function of both processes, but that intuitive processing is “affect-laden” and results in rapidly made moral judgments that are influenced by affect. However, not all emotions exclusively lead to intuitive processing (Darlow and Sloman 2010). Here, we develop this line of research by theorizing that while anger leads to intuitive processing, guilt leads to deliberate processing.

Dual-process theory has influenced not only emotion research, but also behavioral ethics research. For instance, findings from the field of neuroscience crystalize the connection between dual processing and ethical decision making (Ciaramelli et al. 2007; Greene et al. 2001, 2008). When altering certain aspects of ethical decisions, researchers observed that these alterations led respondents to use different areas of the brain, resulting in different outcomes. For example, Greene et al. (2001) showed that different types of ethical decisions could activate areas of the brain associated either with automatic, emotional processing (amygdala and the medial surfaces of the frontal and parietal lobes), or areas associated with deliberative, cognitive processing (dorsolateral surfaces of the prefrontal cortex and parietal lobes). Thus, fMRI research provides neuroscientific evidence of two distinct processes underlying ethical decision making.

In addition, previous research has noted that humans have an automatic impulse to maximize self-interest and to protect the self against outside threat (e.g., offensive remarks; Sherman and Kim 2005) that is deeply ingrained in our psyche (Dawkins 2006). This effect is largely driven by a primal motivation to enhance survival in a world with limited resources (e.g., money; Navrud and Ready 2002). This motivation for survival urges us to pay special attention to factors that can affect our standing in the world, influence the wellbeing of ourselves and those we care about, and secure scarce resources. When possible, we then act in ways that promote our interests, often failing to pay sufficient attention to other factors, such as ethical standards or organizational rules. This motivation to protect our self-interests acts as the default in ambiguous situations (Mead et al. 2009). As a result, when facing tempting dilemmas, individuals often impulsively make self-interested and lucrative but unethical choices unless they deliberately put forth the effort required to align their behavior with moral standards (Gino et al. 2011; Mead et al. 2009; Shalvi et al. 2012).

As a society, we have recognized that if everyone consistently behaved in a self-interested way we would all suffer in the end, a situation sometimes referred to as the “tragedy of the commons” (Hardin 1968). In a classic example, a group of cow herders share a common acre of land. It is in the best interest of each herder to allow more of his or her cows to over-graze. However, if each herder behaved in this self-interested manner, then ultimately there would be no grass left to the detriment of all herders. Thus, we have developed moral standards and cultural norms that discourage exclusively serving one’s own needs in favor of serving the greater good (Mead et al. 2009). Slower and rational deliberation is often required to override impulsive selfish responses and consider what is best for the greater good (Bereby-Meyer and Shalvi 2015). Said otherwise, only upon careful deliberation are individuals more likely to consider how their default self-interested actions might ultimately harm society. Empirical work supports the notion that deliberating on how one’s unethical behavior can negatively affect others decreases the probability that one will behave in a self-interested and unethical way. Gunia et al. (2012) suggest that contemplation and deliberation are “essential means to access moral values and, ultimately, make a reasoned ethical decision” (p. 15). Similarly, certain ethical decision-making models (e.g., Cushman et al. 2006; Jones 1991) propose that ethical actions require moral awareness, which is likely to occur when people are given time to think about their decisions. For instance, Shalvi et al. (2012) found that under high time pressure, where impulsivity often prevails, participants lied more than under low time pressure, where careful reflection is possible. Taken together, these lines of

work indicate that when individuals face tempting situations, deliberation—as opposed to intuition—is most likely to reduce unethical behavior.

Anger and Impulsive Processing

Anger, the feeling that occurs when another person or entity is perceived as responsible for a wrongdoing (Gibson and Callister 2010), often leads to impulsive, automatic behavior, such as retaliation and aggression. Retaliation is a behavior performed with the intention of achieving a state of psychological equity (Huefner and Hunt 2000; Phau and Baird 2008). Aggression is behavior directed toward another individual carried out with harmful intentions (Anderson and Bushman 2002). An array of research findings has associated anger with increased impulsivity (Bonifield and Cole 2007), including a greater willingness to take risks (Lerner and Keltner 2001) and a tendency to relapse into addictive behaviors, such as overeating, illicit drug use, smoking, compulsive buying and bulimia nervosa (Delfino et al. 2001; De Mojá and Spielberger 1997; Engel et al. 2007; Macht 1999; Miltenberger et al. 2003).

Angry individuals often react impulsively because they want to quickly stop the behavior seen as threatening, prevent future occurrences of the offending behavior, or “balance the scales” (Anderson and Bushman 2002). As an example of balancing the scales, Fox and Spector (1999) found that trait anger was strongly associated with counterproductive work behaviors. This relationship was even stronger if employees believed they had the ability to harm the organization without being caught. These impulsive behaviors serve not only to safeguard the person’s well-being but also to punish the offender and restore a sense of fairness (Barclay et al. 2005; Skarlicki and Folger 1997). Aggression and retaliation against others are both types of impulsive and automatic reactions. According to Bushman and Anderson (2001, p. 276), “hostile aggression is, by definition, automatic—it is unreasoned, impulsive, uncontrollable, and spontaneous.” Anger can increase retaliation because it provides a justification for acting antagonistically (Anderson and Bushman 2002). Additionally, research has demonstrated that anger is associated with decreased deliberation and attention (Bodenhausen et al. 1994; Tiedens 2001; Verhulst and Lizotte 2011). Other researchers, such as Carver and Harmon-Jones (2009) and Harmon-Jones et al. (2010), have associated anger with an approach orientation, which involves a surge of energy channeled toward confronting the offender. This energy allows the body to engage in specific behaviors (Caputo et al. 2003) such as attacking a perceived enemy. On many occasions, such actions are deviant or unethical and in the workplace, can result in counterproductive behaviors, such

as aggressing toward a colleague (Bennett and Robinson 2000).

Anger thus increases reliance on impulsive and automatic processing (Bodenhausen et al. 1994; Lerner et al. 1998; Tiedens and Linton 2001). As unethical behavior is also often automatic and impulsive (Shalvi et al. 2012), dual-process theory would suggest that anger increases unethical behavior through impulsive processes via a spillover effect. We predict that feelings of anger may extend beyond the situation in which it was elicited to influence unrelated ethical decisions. More specifically, the angry individuals in our studies are not presented with the opportunity to aggress against a particular person. Instead, we argue that the tendency for angry individuals to act in an impulsive and automatic way is manifested in subsequent tasks measuring dual processing and unethical behavior.

Guilt and Deliberate Processing

Guilt is a feeling that occurs when one has violated a personally relevant moral or social standard (Kugler and Jones 1992). Individuals experiencing guilt may engage in self-reflection in which they think deeply about themselves and choices they have made (Joireman 2004). Therefore, the experience of guilt often results in careful and controlled processing, such as reparation, where guilty individuals attempt to make amends for their past behavior (Amodio et al. 2007; Baumeister et al. 1994, 1995; Nabi 1999). Proneness to experiencing guilt (Cohen et al. 2011) has been linked to a variety of outcomes associated with decreased impulsive processing, including reduced alcohol and drug use (Dearing et al. 2005), less delinquency (Stuewig and McCloskey 2005), and more constructive responses to anger in interpersonal relationships (Tangney 1995). Recently, Ilies et al. (2013) found that when employees were made aware of their counterproductive work behaviors (CWB), they experienced guilt and carefully considered paths to redemption, including increased organizational citizenship behaviors (OCB).

The discomfort and distress inherent in guilt motivate action in a way that mends past transgressions. This reparative behavior is intended to restore feelings of self-worth, moral identity, interpersonal amity, and positive affect (Baumeister et al. 1994; Caprara et al. 2001; Tangney et al. 2007). The use of systematic and controlled processing not only provides guilty individuals with possible avenues for redemption, but it also prevents them from succumbing to impulses that might be selfish or harmful to others. Future failures to behave in line with personal or societal standards might lead to exacerbated feelings of guilt. Monteith and colleagues examined guilt in the context of prejudice (Devine et al. 1991; Monteith

1993; Monteith et al. 2002). The researchers theorized and demonstrated that individuals experienced guilt after responding to a situation with prejudice. These guilty individuals then behaved more slowly and cautiously in similar future tasks in order to avoid the pitfall of automatic, impulsive stereotyping.

Guilt increases reliance on systematic and controlled processing in order to carefully identify paths to absolution and increase resistance to potentially harmful automatic impulses. Since behaving ethically also requires controlled processing and deliberation (e.g., Shalvi et al. 2012), we predict that guilt decreases unethical behavior through increased deliberative processing. As with anger, the guilty individuals in our studies are not presented with the opportunity to repair past behavior. Instead, we argue that the tendency for guilty individuals to act in a systematic and careful manner is reflected in subsequent tasks measuring dual processing and unethical behavior. Therefore we hypothesize:

Hypothesis 1 Angry individuals will show a greater reliance on impulsive processing compared to neutral individuals.

Hypothesis 2 Guilty individuals will show a greater reliance on deliberate processing compared to neutral individuals.

Hypothesis 3 Angry individuals will behave more unethically than neutral individuals.

Hypothesis 4 Guilty individuals will behave more ethically than neutral individuals.

Hypothesis 5a Dual processing will mediate the relationship between anger and unethical behavior such that anger will increase unethical behavior via increased impulsivity.

Hypothesis 5b Dual processing will mediate the relationship between guilt and unethical behavior such that guilt will increase ethical behavior via increased deliberation.

Study 1 Method

Participants and Procedure

Study 1 was conducted in a laboratory setting with 116 participants from a large public U.S. university. Participants received course credit for their participation. The median age was 20, and 48 % were female. Participants were randomly assigned to one of three conditions (anger, guilt, neutral), worked in separate carrels to complete a number of tasks, and received a three-digit number for

anonymity. They first completed a performance task followed by the emotion induction writing task and an emotion manipulation check. Next, they compensated themselves for the performance task. This provided them with an opportunity to engage in unethical behavior by over-reporting their performance.

Manipulations and Measures

Performance Task

Participants were presented with a set of 20 matrices (“Matrix task”; Mazar et al. 2008). Each matrix contained 12 different three-digit numbers. Participants had 6 min to circle two numbers in each matrix that summed to 10 (for example, 2.81 and 7.19). In addition, participants were told that they would receive \$0.25 for each correctly solved matrix at the end of the experimental session. After 6 min, the experimenter announced that time was up and that they should proceed to the next task.

Emotion Induction

Anger and guilt were experimentally induced by the writing task developed by Strack et al. (1985) and validated in multiple studies (e.g., Dunn and Schweitzer 2005; Huntsinger 2013; Kugler et al. 2012; Lerner and Keltner 2001; Motro et al. 2014; Norton and Gino 2014; Tiedens and Linton 2001; Todd et al. 2015). Participants wrote in detail about a time when they vividly experienced either anger or guilt. They were asked to imagine how the specific emotion felt, to describe the experience of the emotion, and to avoid including any other feelings in their descriptions. We also included a neutral condition in which participants were asked to describe in detail the last classroom they were in. Participants were given as much time as they needed to fill at least two lined pages.

Manipulation Check

To verify that the intended emotions were elicited by the scenarios, participants rated the degree to which they were *currently* experiencing 21 emotion adjectives on a scale ranging from (1) *Do not feel at all* to (9) *Feel stronger than I ever have* (Watson et al. 1988). The survey included three items intended to measure guilt (*remorseful*, *sorry*, *guilty*), and three items intended to measure anger (*irritated*, *mad*, *angry*). The remaining 15 items were fillers. Both anger and guilt scores showed good reliability ($\alpha > .92$).

Unethical Behavior

At the end of the experimental session, participants were told that they should pay themselves according to their

performance in the Matrix task. Participants each had an envelope containing \$5 in quarters on their desk and were instructed to pay themselves \$0.25 for each matrix that they correctly solved. To reinforce confidentiality, they were instructed to discard their answer sheets in a recycling bin in the back of the room and exit the lab. Unknown to participants, the final matrix in each packet contained a unique three-digit identification code, which permitted the worksheets to be matched to the envelopes. Because it is generally clear when a problem is solved correctly and legitimate mistakes are infrequent, over-reporting one's performance and claiming undeserved compensation is considered to be a form of unethical behavior (Gino et al. 2010; Mazar et al. 2008; Shu et al. 2011; Welsh and Ordóñez 2014b).

Study 1 Results

Manipulation Check

Skewness values for both anger (.81) and guilt (1.08) scores fell between the range of -2 and 2 , indicating that the distributions did not deviate considerably from normality (West et al. 1995). Therefore, we did not apply any transformation to the data before the analyses. A repeated measures ANOVA of emotion ratings (anger and guilt) as within subject factors showed that participants within the anger condition reported feeling significantly more angry ($M = 5.53$, $SD = 2.73$) than guilty ($M = 2.15$, $SD = 1.48$), $F(1, 36) = 53.52$, $p < .001$. The same analysis in the guilt condition showed that participants reported feeling significantly more guilty ($M = 5.68$, $SD = 2.32$) than angry ($M = 3.27$, $SD = 2.10$), $F(1, 38) = 51.36$, $p < .001$. A Levene's test for homogeneity indicated unequal variances between the groups for the anger ratings, $F(2, 113) = 15.92$, $p < .001$, and for the guilt ratings, $F(2, 113) = 18.75$, $p < .001$. Thus, we assumed unequal variances when reporting contrasts between conditions. Participants in the anger group reported feeling significantly angrier than those in the neutral group ($M = 1.78$, $SD = 1.15$), $t(47.61) = 7.75$, $p < .001$, and participants in the guilt condition reported feeling significantly guiltier than participants in the neutral group ($M = 1.58$, $SD = 1.02$), $t(51.98) = 10.14$, $p < .001$. These results suggest that the writing task manipulation was successful in inducing the intended emotions.

Unethical Behavior

We then examined the number of undeserved quarters taken by angry participants ($M = 3.95$, $SD = 4.38$), guilty participants ($M = .46$, $SD = 1.02$), and neutral participants

($M = 1.90$, $SD = 4.04$) in the Matrix task using a one-way ANOVA with planned comparisons. Since the distribution of quarters taken was not normal (skewness = 2.43), we log transformed it to correct its deviation from normality (Kleber et al. 2013; Kline 1998; Kogut and Ritov 2005; Pittarello et al. 2015b). The transformation successfully reduced the deviation from normality (skewness = 1.52; West et al. 1995). Overall, we found a significant effect of emotion on log undeserved quarters taken, $F(2, 113) = 13.09$, $p < .001$, $\eta^2 = .19$. A Levene's test for homogeneity of variance was significant, $F(2, 113) = 25.74$, $p < .001$, indicating that the three groups had unequal variances; therefore the planned comparisons reported do not assume equal variances. Participants in the anger condition took significantly more quarters than they were entitled to ($M_{\log} = .97$, $SD_{\log} = .98$) compared to neutral participants ($M_{\log} = .41$, $SD_{\log} = .81$), $t(69.95) = 2.69$, $p < .01$, supporting Hypothesis 3. Similarly, guilty participants ($M_{\log} = .09$, $SD_{\log} = .32$) took significantly fewer undeserved quarters than neutral participants $t(51.57) = 2.34$, $p < .05$, supporting Hypothesis 4. Finally, angry participants cheated significantly more than guilty participants, $t(43.46) = 5.17$, $p < .001$. Together, emotion explained 19 % of the variance in unethical behavior—a large effect size (Prajapati et al. 2010). See Table 1 for the correlations, means, and standard deviations.¹

Study 1 Discussion

Cheating among angry participants was on average more than double as compared to the neutral condition and, remarkably, more than eight times greater than in the guilt condition. As we did not examine potential mediating mechanism of dual processing, the results of Study 1 represent a first step in testing our hypotheses. Thus, Study 2 extends Study 1 by testing the full model with objective measures of both dual processing and unethical behavior.

¹ We also performed a one-way ANOVA with planned contrasts assuming unequal variances on overpayment in the Matrix task that was not log transformed: $F(2, 113) = 9.60$, $p < .001$, $\eta^2 = .15$. Angry individuals cheated significantly more than neutral individuals, $t(73.17) = 2.13$, $p < .05$. Guilty individuals cheated significantly less than neutral individuals, $t(44.08) = 2.18$, $p < .05$, and angry individuals cheated significantly more than guilty individuals, $t(39.72) = 4.72$, $p < .001$, supporting our hypotheses. A one-way ANOVA with planned contrasts assuming equal variances on overpayment in the Matrix task that was not log transformed also supported our overall model. Angry participants took significantly more undeserved quarters than neutral participants, $t(113) = 2.58$, $p < .05$. Guilty participants cheated somewhat less than neutral participants $t(113) = 1.84$, $p < .10$, and angry participants cheated significantly more than guilty participants $t(113) = 4.37$, $p < .001$.

Table 1 Means, standard deviations, and correlations among study one variables^a

Variable	Mean	S.D.	1.	2.	3.	4.	5.	6.
1. Anger vs. Guilt ^b	.51	.50	–					
2. Anger vs. Neutral ^c	.52	.50	–	–				
3. Guilt vs. Neutral ^d	.51	.50	–	–	–			
4. Unethical behavior ^e	2.07	3.73	.49**	.24*	–.24*	–		
5. Gender ^f	0.48	0.50	–.01	–.18	–.17	.04	–	
6. Age	20.31	1.46	–.01	.17	.18	.03	–.17	–

* $p < .05$; ** $p < .01$ ^a $n = 116$ ^b $n = 76$, emotion coded as 0 = guilt, 1 = anger^c $n = 77$, emotion coded as 0 = neutral, 1 = anger^d $n = 79$, emotion coded as 0 = neutral, 1 = guilt^e Coded as the amount of overpayment in quarters on the performance task^f Gender coded as 0 = male, 1 = female

Study 2 Method

Participants and Procedure

Similar to Study 1, Study 2 was conducted in a laboratory setting with 238 participants from a large public U.S. university who received course credit for their participation. The median age was 21 and 55 % were female. Participants were randomly assigned to one of three conditions (anger, guilt, neutral), and worked in separate carrels to complete a number of computerized tasks. As in Study 1, participants first completed the emotion induction writing task and an emotion manipulation check, followed by a measure of dual processing, and then an unethical behavior task.

Emotion Induction

Participants completed the same writing task (Strack et al. 1985) used in Study 1 to induce anger, guilt, or neutral.

Manipulation Check

Participants completed the same manipulation check used in Study 1. Both anger and guilt scores showed good reliability ($\alpha > .88$).

Dual Processing

To measure dual processing, we used the number of questions answered correctly on an expanded 10-item measure of the Cognitive Reflection Test (CRT; Frederick 2005; Primi et al. 2015; Thomson and Oppenheimer 2016), which several researchers have shown captures the difference between impulsive and deliberate processes

(Ackerman and Zalmanov 2012; Brosnan et al. 2016; Primi et al. 2015; Thomson and Oppenheimer 2016; Toplak et al. 2011).² These questions are designed such that there is an intuitive but incorrect response, whereas the correct solution requires additional deliberation. Thus, individuals relying on impulsive processing should answer fewer questions correctly, while individuals employing deliberate processing should answer more questions correctly (Chaiken et al. 1989).

Unethical Behavior

We used the “Joker task” to measure unethical behavior (Pittarello et al. 2015b). In this task, participants played a computerized card game and had the opportunity to win extra money based on their performance. All participants started the game with \$100. They were then told that upon completion of the study, two participants would be selected at random to win the actual amount of money earned at the end of the task (Cohen et al. 2011; Gunia et al. 2014; Pittarello et al. 2016). The virtual deck included cards labeled from one to ten and “J” cards (“Joker”). In a series of forty trials, two cards from the deck were selected and displayed on the screen next to one another (see Fig. 1). In 20 of the trials a “J” card appeared, either on the left side of the screen or on the right side of the screen. On the other side was a number. In the other 20 trials, the two cards were numbers. All cards appeared in a predetermined random order, and each participant saw the same cards

² To avoid “floor effects” (Primi et al. 2015, p. 1) sometimes associated with the original measure, the expanded 10-item CRT that we use includes the original three-item measure (Frederick 2005), plus the three new items developed by Primi et al. (2015; what they term the CRT-Long), and the four new items developed by Thomson and Oppenheimer (2016; what they term the CRT-2).

displayed in the same order. Importantly, participants were able to see the cards for an unlimited amount of time in order to avoid any potential influence of time constraints (Shalvi et al. 2012), and to ensure that their responses were not incorrect due to simple errors.

The rules stated that whenever both cards contained a number between one and ten, participants were allowed to keep all their money. However, whenever a “J” card appeared on either the left or right side of the screen, participants had to report it and would consequently lose \$4 from the initial \$100. On each trial, after seeing the two cards, participants clicked forward to a different page, where they selected one of two options. One option stated that on the previous page there was no “J” card and that no money should be deducted from the total sum. The other option stated that on the previous page there was a “J” card and that \$4 should be deducted from the total sum. Here participants wishing to boost their profits could cheat by reporting that no “J” card was present when indeed one was. After each trial, participants saw the total sum of money they had left. If participants reported honestly in all the trials, they should have earned \$20 at the end of the task [$\$100 - (20 \text{ “J” cards} \times \$4)$]. Any earnings above \$20 constituted unethical behavior, as this indicated that participants did not report seeing “J” cards that were actually present. The total amount of money that participants over-reported earning at the end of the task formed the measure of unethical behavior.

Study 2 Results

Manipulation Check

As in Study 1, the skewness values for both anger scores (.97) and guilt scores (.92) fell between -2 and 2 (West et al. 1995). Therefore we did not apply any transformation to the data before the analyses. A repeated measure ANOVA with emotion ratings as within subject factors showed that participants within the anger condition reported feeling significantly more angry ($M = 4.72$, $SD = 2.41$) than guilty ($M = 2.27$, $SD = 1.70$), $F(1, 79) = 87.74$, $p < .001$. A similar analysis in the guilt condition showed that participants reported feeling significantly more guilty ($M = 4.56$, $SD = 2.17$) than angry ($M = 2.55$, $SD = 1.67$), $F(1, 77) = 95.90$, $p < .001$. A Levene’s test for homogeneity indicated unequal variances between the groups for the anger ratings, $F(2, 235) = 11.19$, $p < .001$, and for the guilt ratings, $F(2, 235) = 7.34$, $p < .001$. We therefore assumed unequal variances when reporting contrasts between conditions. Participants in the anger group reported feeling significantly angrier than those in the neutral group ($M = 2.25$, $SD = 1.79$), $t(145.87) = 7.37$, $p < .001$, and participants in the guilt group reported feeling significantly guiltier than participants in the neutral group ($M = 2.01$, $SD = 1.68$), $t(145.07) = 8.24$, $p < .001$. These results demonstrate the effectiveness of the emotion manipulation.

Fig. 1 Procedure for Joker task

Dual Processing

We then examined the number of questions answered correctly on the 10-item CRT measure. The distribution of number answered correctly was normal (skewness = .43). As a Levene's test was significant $F(2, 235) = 5.05, p < .01$, indicating that the three groups had unequal variances, we reported the contrasts assuming unequal variances. Overall, a one-way ANOVA revealed a significant effect of emotion on number correct, $F(2, 235) = 8.86, p < .001, \eta^2 = .07$. Angry participants answered significantly fewer questions correctly ($M = 3.76, SD = 2.06$) than neutral participants ($M = 4.48, SD = 1.88$), $t(156.77) = 2.29, p < .05$, supporting Hypothesis 1. Guilty participants ($M = 5.18, SD = 2.38$) answered significantly more questions correctly than neutral participants, $t(146.37) = 2.06, p < .05$, supporting Hypothesis 2. Furthermore, angry participants answered significantly fewer questions correctly than guilty participants, $t(151.56) = 4.00, p < .001$.³

Unethical Behavior

As in Study 1, overpayment was not normally distributed (skewness = 2.63). Thus, we log transformed it to correct its deviation from normality, and the transformation successfully reduced its deviation (skewness = 1.46). A one-way ANOVA indicated an overall significant effect of emotion on log overpayment, $F(2, 235) = 10.78, p < .001, \eta^2 = .08$. As a Levene's test was significant $F(2, 235) = 25.75, p < .001$, we reported the contrasts assuming unequal variances. Angry individuals claimed significantly more undeserved money in dollars ($M = 13.70, SD = 23.49; M_{\log} = 1.34, SD_{\log} = 1.63$) than neutral individuals ($M = 7.85, SD = 18.71; M_{\log} = .76, SD_{\log} = 1.40$), $t(154.53) = 2.43, p < .05$, supporting Hypothesis 3. Guilty individuals claimed significantly less undeserved money ($M = 2.56, SD = 11.29; M_{\log} = .35, SD_{\log} = .90$) than neutral individuals, $t(135.68) = 2.18, p < .05$, supporting Hypothesis 4. In addition, angry individuals claimed significantly more undeserved money than guilty individuals, $t(124.22) = 4.74, p < .001$. These findings show that compared to a neutral condition, anger

increased cheating, whereas guilt reduced it. See Table 2 for correlations, means, and standard deviations.⁴

Mediation Analysis

To test Hypothesis 5a, we conducted mediation analysis using the PROCESS macro (Hayes 2013) to perform bootstrapping analyses using 5000 bootstrap samples (Preacher and Hayes 2008; Shrout and Bolger 2002). Following the procedure in Zervas et al. (2013) for multi-group mediation, we compared the anger versus neutral conditions. Entering log over-reported earnings on the Joker task as the dependent variable and questions answered correctly on the CRT as the mediator variable, we estimated the indirect effects using unstandardized regression coefficients. Supporting Hypothesis 5a, the bootstrap estimates were negative, and the 95 % bias-corrected confidence intervals (BCCI) did not include zero, $b = -.08, SE = .05, CI [-.23, -.01]$, indicating that the indirect effects were significant at the .05 level and that mediation was present (Shrout and Bolger 2002).

The second test compared the guilt versus neutral conditions. Supporting Hypothesis 5b, the bootstrap estimates were positive, and the 95 % bias-corrected confidence intervals (BCCI) did not include zero, $b = .06, SE = .04, CI [.01, .18]$. This indicates that the indirect effects were significant at the .05 level and that mediation was present.

A supplementary analysis compared the anger versus guilt conditions. We found that the bootstrap estimates were negative, and the 95 % bias-corrected confidence intervals (BCCI) did not include zero, $b = -.14, SE = .07, CI [-.31, -.04]$, once again showing that the indirect effects were significant at the .05 level and that mediation was present. Overall, these analyses indicated that angry individuals behaved more unethically than neutral individuals due to increased impulsivity, while guilty individuals behaved more ethically than neutral individuals due to increased deliberation.

³ We also performed a one-way ANOVA with planned contrasts that showed a significant effect of emotion on number correct on the CRT with equal variances among conditions assumed, $F(2, 235) = 8.86, p < .001, \eta^2 = .07$. Angry participants answered significantly fewer questions correctly than neutral participants, $t(235) = 2.13, p < .05$. Guilty participants correctly answered significantly more questions than neutral participants, $t(235) = 2.09, p < .05$, and angry participants answered significantly fewer questions correctly than guilty participants, $t(235) = 4.21, p < .001$, supporting our hypotheses.

⁴ In addition, we ran a one-way ANOVA with planned contrasts assuming unequal variances on overpayment in the Joker task that was not log transformed: $F(2, 235) = 7.12, p < .01, \eta^2 = .06$. Angry individuals claimed more undeserved money in dollars than neutral individuals, $t(150.49) = 1.74, p < .10$. Guilty individuals claimed significantly less undeserved money than neutral individuals, $t(130.39) = 2.16, p < .05$, and angry individuals claimed significantly more undeserved money than guilty individuals, $t(114.32) = 3.81, p < .001$, supporting our hypotheses. A one-way ANOVA with planned contrasts revealed a significant effect of emotion on non-log transformed overpayment assuming equal variances, $F(2, 235) = 7.12, p < .001, \eta^2 = .06$. Angry individuals claimed significantly more undeserved money in dollars than neutral individuals, $t(235) = 1.99, p < .05$. Guilty participants claimed less undeserved money than neutral individuals, $t(235) = 1.79, p < .10$, and angry individuals claimed significantly more undeserved money than guilty individuals, $t(235) = 3.77, p < .001$, supporting our hypotheses.

Table 2 Means, standard deviations, and correlations among study two variables^a

Variable	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.
1. Anger vs. Guilt ^b	.51	.50	–						
2. Anger vs. Neutral ^c	.50	.50	–	–					
3. Guilt vs. Neutral ^d	.49	.50	–	–	–				
4. CRT score ^e	4.47	2.19	–.31**	–.18*	.16*	–			
5. Unethical behavior ^f	8.08	19.05	.29**	.14†	–.17*	–.21**	–		
6. Gender ^g	.55	.50	.00	.11	.12	–.03	–.06	–	
7. Age	21.10	2.01	.03	–.03	–.08	–.08	–.03	–.02	–

† $p < .10$; * $p < .05$; ** $p < .01$ ^a $n = 238$ ^b $n = 158$, emotion coded as 0 = guilt, 1 = anger^c $n = 160$, emotion coded as 0 = neutral, 1 = anger^d $n = 158$, emotion coded as 0 = neutral, 1 = guilt^e Coded as the number of questions answered correctly on the CRT^f Coded as the amount of overpayment on the Joker task^g Gender coded as 0 = male, 1 = female

Self-harming Mistakes

In order to rule out the possibility that our effects were due to simple errors, or that angry individuals simply paid less attention to the task overall, we ran a supplementary analysis by examining whether angry individuals were more likely than guilty individuals to report that a Joker was present when one was not present (i.e., self-harming mistakes). Of all 1600 trials among individuals in the anger condition (20 trials $\times$ 80 participants), there were only three trials total (<1 %) where participants reported seeing a Joker when one was not present. There were five such trials out of 1600 trials (<1 %) in the neutral condition and seven such trials out of 1560 trials (<1 %) in the guilt condition. Chi square analyses showed no significant differences in number of self-harming mistakes between the anger and neutral conditions, $\chi^2(1) = .501$, ns, Cramer's $V = .013$, between the guilt and neutral conditions, $\chi^2(1) = .387$, ns, Cramer's $V = .011$, or between anger and guilt conditions, $\chi^2(1) = 1.709$, ns, Cramer's $V = .023$. This demonstrates that paying less attention to the task or simple errors are not responsible for our findings.

Study 2 Discussion

The results of Study 2 replicate the finding that angry individuals behave more unethically than either guilty or neutral individuals, and guilty individuals cheat less than neutral individuals. Importantly, we found that these effects were mediated by dual processing. Furthermore, the Joker task allowed us to assess cheating in an unambiguous

setting with readily identifiable correct and incorrect responses, thereby eliminating the possibility that cheating was the result of simple mistakes. It is also worthwhile to note that angry participants cheated regardless of the payment scheme used: In Study 1, all participants were guaranteed to take any money they claimed. In a more conservative test of our predictions, Study 2 used a lottery system to confer bonus payments. In both studies, the two emotions influenced unethical behavior in the predicted directions.

General Discussion

In two studies, we found evidence that anger increased unethical behavior through impulsive processing, whereas guilt boosted honest responses via careful deliberation. This work contributes to the existing literature demonstrating the importance of incorporating intuitive, non-rational perspectives into the field of behavioral ethics (Kish-Gephart et al. 2010), such as emotion. Anger tends to cause impulsive reactions, while guilt tends to prompt careful consideration. These responses map onto dual-process theory, with anger leading to impulsive, automatic processing and guilt leading to deliberate, reflective processing. By uncovering how anger and guilt influence dual processing, we further our understanding of how emotions can affect unethical behavior. In sum, we found evidence of a consistent pattern of behavior across two studies using different measures of unethical behavior. As hypothesized, when compared to neutral individuals, guilty individuals behaved more ethically, whereas angry individuals behaved more unethically.

Our work contributes to research on incidental emotions. Even though the emotion induction procedures in our studies were unrelated to the measures of unethicality, the induced emotions still influenced unethical behavior. This “spillover effect” suggests that emotions triggered in one context can affect outcomes in an unrelated context and attests to the powerful effect of pure emotion. In the workplace, the inherent challenge of incidental emotions is that they are difficult for managers to predict and control, as they can arise from a multitude of different situations. Therefore, managers who are aware of the importance that employee emotions have on workplace behavior may be better able to respond effectively. For instance, if an employee’s anger is the result of a manager’s insult, the manager might react by apologizing. However, if the anger is the result of some unrelated even, then the manager might propose unwinding with colleagues for a couple of minutes.

Our findings also have implications for the organizational justice literature. Across several studies, Greenberg (1990, 2002, 2003) has provided evidence that employees who perceive unjust treatment retaliate by harming the organization (e.g., theft). Scholars also have shown that organizational decisions and policies deemed unfair lead to employee anger (Folger 1987; Skarlicki and Folger 1997; Weiss et al. 1999). This anger in turn leads to retaliation against the organization or employees perceived as responsible for the injustice (Kickul 2001; Schweitzer and Gibson 2008; Sheppard et al. 1992). Our findings provide additional evidence that anger may play a key role in unethical behavior in the workplace. We suggest that angry employees commit unethical acts due to their increased reliance on impulsive processing.

In addition, our results build upon recent studies demonstrating potentially constructive effects associated with guilt. Ilies et al. (2013) found that guilt led to increased organizational citizenship behaviors (OCB). Similarly, Bolino et al. (2004) suggested that employees may engage in OCBs to compensate for workplace transgressions. In our studies, guilty individuals behaved more ethically due to increased deliberative processing. Taken together, this line of research suggests that guilt can promote positive behavior in organizations. However, these prescriptions should be interpreted with caution, as too much guilt may lead to shame, an emotion associated with a variety of negative consequences (Dearing et al. 2005; Ghorbani et al. 2013; Orth et al. 2006; Tangney et al. 1992).

We recognize that our study focuses on a specific form of anger. Anger is very often classified as a negative, high arousal state (Deffenbacher 1992), and our manipulation of anger was consistent with this common conceptualization. However, the question arises as to how our results would

have looked if we instead conceptualized anger as a negative, but *low* arousal state [the kind of hostile aggression described by Anderson and Bushman (2002, p. 41) as “coldly calculating”] that often results in carefully planned-out revenge toward an enemy. In this conceptualization, there might actually be the opposite effect, where anger decreases unethical behavior due to more careful processing. We believe that this is an intriguing avenue to explore in the future.

In practice, our results suggest that managers and employees alike should pay close attention to the emotions expressed by their coworkers. This is particularly true with a frequently experienced emotion like anger (Averill 1982; Lerner and Tiedens 2006). Managers and coworkers who sense that certain employees are disgruntled should take special care to address these emotions and especially attend to employee anger before it damages the organization. Interventions or workshops that target anger management (Howells and Day 2003; Thomas 2001) appear to be a promising way to encourage effective anger regulation and help limit any damage or profit loss.

As emotions can cloud unrelated judgments, managers may want to refrain from assigning ethics-related tasks to employees that they know are angry. This is true even if the anger was provoked by a completely unrelated situation. One potential way to address this is to allow for a “cooling period” in which angry employees are given time and space to return to a more neutral emotional state. Prior research has discussed the utility of such cooling periods in a variety of settings (Adler et al. 1998; Smith and Beckner 1993; Smith and Hart 1994). For instance, in a study of prison inmates, Smith and Beckner (1993) noted that the most effective anger-management skill inmates learned was walking away from the conflict and cooling down in some other area of the prison.

Although generalizability is often cited as a concern in laboratory studies, the methodology that we employed allowed us to elicit specific, universally experienced emotions (confirmed with manipulation checks), assess mediating mechanisms, and infer causality between the elicited emotions and unethical behavior. Even so, future work using other induction techniques, such as videos (Gross and Levenson 1995), would certainly strengthen the results presented here. In addition, past research has shown that unethical behavior can change depending on the time of day (Kouchaki and Smith 2014), suggesting that the effects of emotion observed here might also vary over time.

In the workplace, individuals often work in teams where decisions are made inter-individually. So what happens when some team members experience particular emotions? Given that emotions are often contagious (Barsade 2002; Hatfield and Cacioppo 1994), future research could consider the impact of different affective states on the

emotions and decisions of coworkers or subordinates. The concept of emotional contagion is based on findings in the emotional labor literature suggesting that customers catch emotions from the displays of employees following a service encounter (Pugh 2001). In groups, the experience of emotion can be a socially shared process (Barsade 2002). Applied to the present context, a situation eliciting anger or guilt in an employee might alter not only the employee's decision making but also the emotions and decision making of colleagues that interact closely with the employee. Future research could consider whether an employee expressing guilt could trigger "collective guilt" (Branscombe and Doosje 2004) in the group, which could trigger a team effort to find a solution.

Finally, another potential avenue for future research would be to identify a variety of trait differences that may affect the likelihood of unethical behavior. Examining such differences allows researchers to better pinpoint the conditions under which a main effect is stronger, weaker, or reversed. This can enrich our grasp of the underlying theory and help clarify the role of emotions in ethics. For instance, "belief in a just world" (Lerner 1980), which is the overall belief that the world is a fair place where people get the rewards and punishments they deserve, could contribute to our understanding about how perceptions of fairness influence unethical behavior (Houser, Vetter, and Winter 2012). For example, an angry individual might behave even more unethically toward someone who just punished or hurt them, since they want to enforce equality. Similarly, a guilty individual might behave even more ethically later toward someone who they just punished or hurt.

Conclusion

Across two studies, we found that anger increases unethical behavior, while guilt increases ethical behavior. Further, we found that these effects were mediated by impulsive and deliberate processing. Emotions are experienced in the workplace every day, and the temptation to behave unethically is sometimes too strong to ignore. Our work suggests that emotions play a key role in cheating behavior and that safeguards should be implemented to prevent angry individuals from behaving unethically in organizations. We hope that these findings will encourage future research exploring how different emotions, tasks, and boundary conditions shape ethical decision-making processes. Our results also deliver a promising message: paying early attention to the emotions expressed by others might prevent unethical behavior and foster greater adherence to that ethical standards that organizations value.

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