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BRIDGING COGNITION AND EMOTION IN MORAL DECISION MAKING: ROLE OF EMOTION REGULATION

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ABSTRACT

In the last decades, the involvement of emotions in moral decision making was investigated using moral dilemmas in healthy volunteers, neuropsychological and psychiatric patients. Recent research characterized emotional experience in moral dilemmas and its association with deontological decisions. Moreover, theories debated the roles of emotion and reasoning in moral decision making and suggested that emotion regulation may be crucial in overriding emotion-driven deontological biases. After briefly introducing the reader to moral dilemma research and current perspectives on emotion and emotion-cognition interactions in this area, the present chapter reviews emerging evidence for emotion regulation in moral decision making. Inspired by recent advances in the field of emotion regulation, this chapter also highlights several avenues for future research on emotion regulation in moral psychology.

INTRODUCTION

In the last decades, research on moral decision making has rapidly developed in psychology and cognitive neuroscience (Greene & Haidt, 2002; Greene, 2014, 2015). The involvement of emotions in decision making stimulated much work and is now widely accepted (Blanchette & Richards, 2010; Lowenstein & Lerner, 2003), but this idea was for a long time at odds with the dominant view of decision as purely rational (Haidt, 2001; Miu, Miclea, & Houser, 2008). To date, an extensive literature has associated moral decision making with emotional biases (e.g., Szekely & Miu, 2015; Wheatley & Haidt, 2005), with neural activity in the limbic system and executive areas involved in emotion regulation (e.g., Greene, Sommerville, Nystrom, Darley, & Cohen, 2001), and with loss of function following lesions in emotion-cognition brain hubs (e.g., Koenigs et al., 2007). However, it is still debated whether the interplay of emotion and reasoning in moral decision making would best

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be viewed as competition (Greene & Haidt, 2002) or cooperation (Moll & de Oliveira-Souza, 2007). Based on a recent line of evidence, the answer to this debate may come from studies on emotion regulation.

MORAL DECISION IN DILEMMA

Moral judgment and decision making refers to appraising the moral acceptability of behaviors according to socially validated concepts of right and wrong, and acting on these appraisals (Moll, Zahn, de Oliveira-Souza, Krueger, & Grafman, 2005). These moral appraisals may happen either after careful consideration or almost instantly and effortlessly. Therefore, researchers have described two types of moral appraisal: consciously controlled and deliberative, and automatic-intuitive (Cushman, Young, & Greene, 2010; Haidt, 2001).

Investigating consciously controlled moral appraisals was central to early psychological research on moral judgment. Inspired by Jean Piaget's work (1932), Lawrence Kohlberg pioneered research on moral judgment in cognitive psychology. Focusing on moral development, Kohlberg conducted multiple thought experiments in which children and adolescents described their reasoning process in moral dilemmas (Kohlberg, 1981). Moral dilemmas are hypothetical scenarios with moral content, which require forced choice between alternatives with different costs (Lemmon, 1962). For example, a moral dilemma that Kohlberg often used in his work presents the situation of a man, named Heintz, who is put in a position to decide whether or not to steal an experimental drug in order to save his dying wife (Kohlberg, 1981). By analyzing how participants of various ages justified their responses to the question of whether Heintz should steal the drug, Kohlberg articulated his theory on stages of moral development (Kohlberg, 1981). Having exclusively relied on self-reported moral justifications, this theory argued that moral judgment involves only consciously controlled processes.

However, there are situations in which we immediately know that something is right or wrong and as a consequence, we feel good or bad about it, without any prior conscious deliberation. Much like aesthetic judgments, in which we instantly tend to approve or disapprove a certain event or situation, moral judgments can occur quickly and effortlessly (Greene & Haidt, 2002). For example, consensual incestuous relationships between adults are rapidly judged morally wrong and felt with a deep sense of disgust, even if there are no emotional and biological consequences (Haidt & Hersh, 2001). In his theory known as the social-intuitionist model, psychologist Jonathan Haidt was among the first to argue that moral intuitions (i.e., emotionally-driven, automatic behavior tendencies) play a crucial role in moral judgment. He also explained that moral intuitions may have evolved in order to protect social communities from norm transgressions (e.g., harming or killing other people) and maximize overall social welfare in humans (Haidt, 2007; Prehn & Heekeren, 2009). To our knowledge, there is limited experimental evidence on moral intuitions, which may be explained by the difficulty in manipulating emotions outside awareness. A landmark study used hypnosis as means of associating an arbitrary word with disgust and found that participants subsequently showed decreased tolerance for moral transgressions described in vignettes that included that word (Wheatley & Haidt, 2005).

In an attempt to "map" the moral domain, researchers have identified five clusters of moral concerns, corresponding to general moral themes such as "harm", "purity", "fairness", "autonomy" and "loyalty" (Graham et al., 2013). These themes are related to norms of social conduct and can be found in most cultures (Graham et al., 2011; Graham, Haidt, & Nosek, 2009). They could be viewed as variations of a more general cognitive template related to harm (Cameron, Lindquist, & Gray, 2015, p.18). For example, purity violations may be viewed as a form of spiritual harm, whereas fairness violations may be understood as harm perpetrated through inequality (see Cameron et al., 2015). Transgressions of norms related to physically harming others have been extensively investigated in relation to emotions, and showed that, as expected, these behaviors are generally disapproved and met with negative emotions in observers. Moreover, when faced with the possibility of inflicting harm to others, people experience negative emotions reflected at the subjective, cognitive and physiological levels (Cushman, Gray, Gaffey, & Mendes, 2012; Miller & Cushman, 2013).

In dilemma-type situations, a tradeoff is required between harmful actions and overall social welfare (Cushman & Greene, 2011). Such moral dilemmas (e.g., harm one person and save more people) make it harder for individuals to instantly dismiss harmful behaviors considering that there are social costs for not accepting this course of action. Moral dilemmas have been widely used in psychological research, being described as "the fruit fly of moral psychology", by analogy with a widely used experimental model in genetics (Christensen & Gomila, 2012; Greene, 2014). One reason for the popularity of moral dilemmas is that they can be adapted to study transgressions of various moral norms (e.g., purity, harm) (e.g., Feinberg, Willer, Antonenko, & John, 2012; Szekely & Miu, 2015) and to investigate various moral concepts (e.g., intentionality, moral intuitions) (e.g., Christensen & Gomila, 2012; Christensen, Flexas, Calabrese, Gut, & Gomila, 2014; Wheatley & Haidt, 2005). Another reason is that they offered some of the first evidence for the involvement of emotions in moral decision making.

A famous moral dilemma, which has caught the interest of philosophers for decades, is the "trolley problem" (Thomson, 1985). In one version of this dilemma, a runaway trolley is out of control and threatens to kill five workmen that stand in its path. This can be avoided by pulling a switch that would divert the trolley onto another track, but by doing so, the trolley would run over another workman who is standing on that track. In a slightly different version of this dilemma, instead of pulling a switch, pushing a person off a footbridge would stop the runaway trolley from killing the five workmen who are standing in its path. In order to assess moral decision making, participants are usually asked to decide upon the moral acceptability of personally committing the harmful behavior (i.e., pulling the switch/pushing the person). In relation to two influential moral philosophies, response alternatives are labeled "deontological" (Kant, 1785/1959) and "utilitarian" (Mill, 1861/1998). Deontological decisions are when one refuses to break the norm (i.e., "do not harm others") no matter the costs, whereas utilitarian decisions are when one endorses the harmful action in order to avoid the higher costs (Greene, 2007).

Using such "harm to save" (H2S) moral dilemmas, it was found that fewer people agree to push a man off a footbridge than to pull a switch in order to divert the trolley and save the other five people (Greene et al., 2001; Petrinovich, O'Neill, & Jorgensen, 1993). Researchers tried to explain the psychological mechanisms underlying these distinct response tendencies in the "push" and the "switch" versions of the "trolley dilemma" (Greene et al., 2001; Greene, 2009; McGuire, Langdon, Coltheart, & Mackenzie, 2009). It was suggested that imagining

how one could use his own hands to harm another person in the "push" scenario might increase the difficulty of the H2S tradeoff and make the dilemma intractable (Cushman & Greene, 2011).

In a pioneering investigation of the neural underpinnings of moral decision making, Joshua Greene and colleagues compared between H2S dilemmas that involve personal (e.g., "push" version of trolley dilemma) or impersonal (e.g., "switch" version of trolley dilemma) harm. In personal H2S dilemmas, there was increased activity in brain areas such as the medial prefrontal cortex, the posterior cingulate cortex and the superior temporal sulcus, which are known to be involved in emotional reactivity, emotion regulation and social cognition (Greene et al., 2001). A related study focused on personal H2S moral dilemmas in which there was relatively high disagreement between participants in terms of what the "right" answer is (Greene, Nystrom, Engell, Darley, & Cohen, 2004). These dilemmas involve increased conflict because of the high personal and social costs associated with both response alternatives. For instance, conflict is increased in moral dilemmas by pitting social welfare against harming a baby instead of an adult. In one such intractable personal H2S dilemma (i.e., "Crying baby" dilemma), participants decide upon the moral acceptability of smothering a crying baby in order to save an entire group of people from being captured and killed by enemy soldiers. This functional neuroimaging study (Greene et al., 2004) revealed that decision making in high-conflict personal H2S moral dilemmas recruit brain structures such as the anterior cingulate cortex and the dorsolateral prefrontal cortex, previously associated with conflict detection and monitoring, and cognitive control, respectively (Greene & Haidt, 2002). Drawing on both studies, a rapidly developing literature has used personal H2S dilemmas to describe the role of emotions in moral decision making (Cushman et al., 2010; Helion & Pizarro, 2014).

EMOTIONS IN MORAL DECISION MAKING

Several complementary approaches supported the idea that emotions enhance deontological decisions in moral dilemmas. Neuropsychological studies reported that patients with focal lesions in the ventromedial prefrontal cortex, a brain area associated with emotional biases in decision making under uncertainty (Bechara, Damasio, & Damasio, 2000), increasingly endorse utilitarian decisions (Ciaramelli, Muccioli, Làdavas, & di Pellegrino, 2007; Koenigs et al., 2007; Martins, Esteves, & Reis, 2012; Moretto, Làdavas, Mattioli, & di Pellegrino, 2010). Relatively high levels of utilitarian decisions were also observed in psychopathy (Cima, Tonnaer, & Hauser, 2010), a personality disorder that is characterized by emotional callousness. From an individual difference perspective, antisocial traits such as trait psychopathy and "Machiavellianism" are associated with increased endorsement of utilitarian decisions (Bartels & Pizarro, 2011), while prosocial traits such as empathic concern are associated with increased endorsement of deontological decisions (Conway & Gawronski, 2013; Jack, Robbins, Friedman, & Meyers, 2014).

Based on the hypothesis that discrete emotions may signal distinct moral concerns (Horberg, Oveis, & Keltner, 2011), early studies found specific links between contempt and community-related concerns (i.e., transgressions of social codes), anger and autonomy-related concerns (i.e., individual rights violations), and disgust and divinity-related concerns (i.e.,

sanctity or purity violations) (Hutcherson & Gross, 2011; Rozin, Lowery, Imada, & Haidt, 1999). However, a recent study (Szekely & Miu, 2015) found that participants experience a whole range of negative emotions in personal H2S moral dilemmas, including fear and sadness, which are the most common, but also compassion, guilt, anger, disgust, regret and contempt. This work underscores the multiple roles that emotions may play in moral dilemmas.

Experimental studies manipulated emotions and described their causal role in moral decision making. For instance, positive affective states enhance utilitarian decisions in healthy volunteers (Pastötter, Gleixner, Neuhauser, & Bäuml, 2013; Valdesolo & DeSteno, 2006). However, this effect may not generalize to all positive emotions considering that mirth, but not elevation was found to facilitate utilitarian decisions in moral dilemmas (Strohminger, Lewis, & Meyer, 2011). In contrast, stress increases the level of deontological decisions in moral dilemmas (Starcke, Polzer, Wolf, & Brand, 2011; Youssef et al., 2012). In line with the literature on positive emotions, there is also evidence that not all negative emotions enhance deontological decisions. Fear and sadness are positively related to deontological decisions, whereas regret is positively linked with utilitarian decisions (Choe & Min, 2011; Szekely & Miu, 2015). Therefore, experimental studies have also highlighted the multiple roles of emotions in moral dilemmas.

One explanation for the diversity of emotions and their multiple roles in moral decision making is that different emotions may arise at different stages of decision making. Certain emotions such as fear might arise immediately after reading and imagining the moral dilemma, whereas others such as regret might arise in the process of pondering between alternatives and weighing their costs (Szekely & Miu, 2015). In line with this view, Cushman et al. (2010) suggested that moral decision might involve “alarm bell” emotions that signal potential moral transgressions, and “currency-like” emotions related to the pros and cons of each alternative. These categories of emotions might be associated with distinct biases in moral decision making, but this hypothesis has not been investigated to date. If, according to our view, “alarm-bell” emotions precede “currency-like” emotions in the decision making process, utilitarian decisions might reflect increased efficiency in down-regulating the former category of emotions. This hypothesis underscores the importance of studying emotion regulation in moral decision research, as interface between emotion and cognition.

RELATIONS BETWEEN EMOTIONS AND REASONING

Dual process theories contrast affective-intuitive and rational-deliberative processes in moral decision making (Cushman et al., 2010; Haidt, 2001). While some researchers argued that emotion-driven intuitions have primacy over reasoning in moral judgment (Haidt, 2001), others portrayed these processes as competitive (Greene, 2005; Greene, 2014). More recently, researchers have suggested that rather than competing, emotions and reasoning cooperate to adapt moral decision making to context (Moll, de Oliveira-Souza, & Zahn, 2008).

The social intuitionist model of moral judgment (Haidt, 2001; Haidt, 2007) argued that emotional intuitions fuel our judgments of moral transgressions and create automatic response tendencies that have a socially adaptive function. Consequently, it was suggested that cognitive control rarely intervenes (for a debate, see Haidt, 2003; Pizarro & Bloom, 2003).

Putting emotion and reasoning in a competitive framework, Greene's dual-process theory (Greene, 2007; Greene, 2009) was developed in light of evidence from moral dilemma research that deontological decisions are associated with neural activity in emotion brain circuits (Greene et al., 2004, 2001) and utilitarian decisions involve more effort and executive resources (Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Moore, Clark, & Kane, 2008). In line with the social-intuitionist model, this theory also assumes that emotion-driven responses are prepotent, but argue that they can be overridden. From this view, utilitarian decisions involve executive processes to override prepotent negative emotions and emotion-driven deontological decisions. This prediction highlights the crucial role that emotion regulation may play in moral decision making (McClure, Botvinick, Yeung, Greene, & Cohen, 2007).

More recent accounts have moved beyond dual process approaches and suggest that emotions and reasoning interact in multiple ways and can result in different moral decision depending on context (Moll et al., 2008). This perspective emphasizes that both deontological and utilitarian courses of action have costs that may motivate one toward either alternative (Moll et al., 2008). Considering that moral dilemmas involve a "closed-world" assumption (i.e., there are only two alternative solutions), cognitive and emotional conflict arises (Greene et al., 2004; Moretto et al., 2010). Therefore, this theory assumes there is competition between conflicting courses of action that both involve emotion-cognition interactions, rather than between emotion and cognition *per se*. Indeed, recent literature has emphasized the difficulties in separating emotion and cognition at the behavioral and neural level (e.g., Okon-Singer, Hendler, Pessoa, & Shackman, 2015; Pessoa, 2008). Decisions resulting from conflict between deontological and utilitarian alternatives may ultimately depend on context (e.g., time pressure, cognitive resources) (Greene et al., 2008) and individual differences (e.g., norm- vs. consequence-focused reasoning) (Piazza, 2012). From this perspective, emotion regulation is essential given that making a certain moral decision involves down-regulating emotions associated with the alternative course of action.

In light of the multiplicity of emotions in moral dilemmas, it was recently suggested that emotions may play different roles in relation to deontological and utilitarian responses (Cushman et al., 2010). In considering the deontological course of action in moral dilemmas, emotions may act like "alarm-bells" that trigger aversive motivation and behavioral avoidance tendencies towards moral transgressions. Conversely, emotions may have a "currency-like" role in considering utilitarian alternatives, possibly by allowing a "motivational calculus" between decision alternatives, so that the pros and cons of each decision are more clearly viewed (Cushman et al., 2010).

Despite different perspectives on emotion and cognition, all these theories converge on the central role of emotion regulation in the way individuals "joggle" with competing motivations to reach a certain moral decision (Helion & Pizarro, 2014). Drawing from studies investigating the role of disgust in moral decision making (Landy & Goodwin, 2015) and the extensive emotion regulation literature (see Gross, 2013), it was emphasized that individuals probably employ a wide array of strategies to modulate their emotions in moral decision making (Helion & Pizarro, 2014). For example, emotion regulation is likely to occur whenever more hedonic goals, such as increasing positive and decreasing negative emotions, are activated (Helion & Pizarro, 2014). People may be differentially motivated to down-regulate negative emotions triggered by anticipation of a harmful action, or up-regulate positive emotions related to saving more lives. While interest in emotion regulation increased

in moral psychology (Feinberg et al., 2012; Lee & Gino, 2015; Szekely & Miu, 2015), this line of work must be integrated in the rich literature on emotion regulation in order to develop a systematic research agenda (McClure et al., 2007).

EMOTION REGULATION: BASIC CONCEPTS

Emotion regulation refers to processes that shape the experience and expression of emotions, including which emotion we have, when we have them and how we experience and express them (Gross, 1998; Gross, 2014). Emotion regulation occurs when one activates a goal to down- or up-regulate emotional experience (Gross, Sheppes, & Urry, 2011). While emotion regulation goals are often focused on decreasing negative emotions and increasing positive emotions, there are contexts which involve less hedonic goals (Tamir, 2009). For instance, maintaining empathic concern toward someone who is distressed (e.g., a doctor's patient) may involve up-regulating one's negative emotions, whereas the need to conceal emotional expressions in social contexts such as negotiations may activate the goal to down-regulate positive emotions (Gross, 2014).

The process model of emotion regulation (Gross, 1998; Gross, 2014) argues that emotion regulation can intervene at several stages during the process of emotion generation. Emotion arises in relation to a specific situation that captures attention and is appraised in relation to current goals, and it involves subjective, physiological and behavioral responses. Therefore, emotion regulation can focus on emotion antecedents (i.e., situation), cognitive mechanisms (i.e., attention allocation and appraisal) or emotional responses (i.e., behavior).

First, experiential approach/avoidance strategies allow one to select desirable situations (e.g., watch only comedy movies) or modify current situations (e.g., hide photos of a recently deceased loved one) according to emotion regulation goals (e.g., reduce negative emotions). Second, once engaged in a situation that cannot be modified, depending on emotion regulation goals, one can use cognitive emotion regulation strategies such as rumination to narrow attention to the situation (e.g., scrutinizing every detail of one's performance in an exam), or distraction to deploy attention away from the situation (e.g., closing one's eyes to scary movie scenes) (Garnefski & Kraaij, 2007; Gross, 2014). Other cognitive emotion regulation strategies target appraisal. Using a strategy known as reappraisal (Gross, 1998), one can reframe the meaning of situation in order to reduce its emotional impact (e.g., viewing an exam as challenge rather than threat) (Jamieson, Mendes, Blackstock, & Schmader, 2010). Other cognitive emotion regulation strategies used in relation to negative events (e.g., a failed exam) involve blaming oneself or others, and catastrophizing or exaggerating the consequences of a situation (Garnefski & Kraaij, 2007). Third, once emotional responses are generated, behavioral regulation strategies such as expressive suppression or acceptance can be employed. Suppression involves reducing emotional expressions (e.g., inhibiting a smile) (Gross, 1998), while acceptance refers to embracing one's emotional responses in a non-judgmental manner (Wolgast, Lundh, & Viborg, 2011).

By taking individual difference or experimental approaches, an extensive literature has examined the affective and cognitive outcomes of emotion regulation strategies (Gross, 2013; Sheppes & Gross, 2011). For instance, reappraisal is associated with decreased negative emotion experience and physiological stress compared to suppression (e.g., Gross, 1998; for

review see Gross, 2002). Rumination, self-blame and catastrophizing are positively associated with anxiety and depression (Martin & Dahlen, 2005). Furthermore, suppression, but not reappraisal is associated with impairing effects on declarative memory for emotional situations (Richards & Gross, 2000; for review see Sheppes & Gross, 2011). Conversely, reappraisal, but not suppression reduces susceptibility to framing (i.e., anomalous decision variance related to the presentation of equivalent options as potential gains or losses) in a gambling task (Miu & Crişan, 2011). Also, reappraisal efficiently reduces risk aversion associated with negative emotions and facilitates intuitive decision making in ambiguous contexts (Heilman, Crişan, Houser, Miclea, & Miu, 2010). Therefore, evidence suggests that the cognitive impact of emotion regulation depends on the efficiency of particular strategies that are employed in modulating emotional experience. Reappraisal is one of the most efficient strategies in down-regulating negative emotion, at least when stressor intensity is not very high (Sheppes, Scheibe, Suri, & Gross, 2011).

EMOTION REGULATION AND MORAL DECISION MAKING

Theories such as Greene's dual process model (Greene, 2007; Greene, 2009) stimulated interest in the role of emotion regulation in moral decision making. An early functional neuroimaging study (Harenski & Hamann, 2006) approached a closely related issue and described the neural mechanisms of emotion regulation using pictures with moral or non-moral content. This study found that watching moral pictures was specifically associated with activity in the superior temporal sulcus and posterior cingulate. Moreover, reducing negative emotions using a form of reappraisal (i.e., pretending scenes were unreal) was found to increase activity in the medial prefrontal cortex and to decrease activity in the left amygdala, although this effect was observed for both moral and non-moral pictures (Harenski & Hamann, 2006). These results anticipated recent research in which emotion regulation has been linked with both emotion and decision making in moral dilemmas.

The first study that examined the relation between emotion regulation and moral decision making focused on purity violations (Feinberg et al., 2012; Graham et al., 2013). Participants were presented with dilemmas that typically elicit disgust (Haidt & Hersh, 2001) and are associated with "moral dumbfounding" or disgust-driven moral intuitions without supporting reason (Haidt, 2001). For instance, one of these dilemmas asks participants to judge the moral acceptability of an incest situation in which two adult siblings consent to having sexual intercourse after taking every precaution necessary to avoid unwanted pregnancy and emotional complications. Feinberg et al. (2012) reported that the habitual use of reappraisal was associated with fewer judgments of immorality in these dilemmas. In an experimental follow-up study, they also found that the effects of using reappraisal during en emotion-inducing film carried to subsequent moral dilemmas in which reduced levels of disgust and judgments of immorality were observed (Feinberg et al., 2012).

One of our recent studies (Szekely & Miu, 2015) also investigated the relations between individual differences in habitual use of four emotion regulation strategies (i.e., reappraisal, acceptance, rumination, and catastrophizing) and decision making in moral dilemmas. In light of recent evidence suggesting that framing decisions as personal choices ("What would you do?") rather than abstract judgments ("Is it morally acceptable?") might increase the

emotional salience of moral dilemmas (Sébastien Tassy et al., 2012; Sébastien Tassy, Oullier, Mancini, & Wicker, 2013), we focused on moral choice in this study. In line with previous results (Feinberg et al., 2012), we found that higher habitual use of reappraisal was associated with fewer deontological choices[1] in personal H2S moral dilemmas. Moreover, our study also assessed emotional arousal in moral dilemmas and found that it was a significant mediator in the relation between reappraisal and deontological choices (Szekely & Miu, 2015). Overall, the results of this study replicate the relation between habitual reappraisal and moral decision making (Feinberg et al., 2012), and show that is applies to both moral judgment and moral choice. In addition, this is the first study indicating that reappraisal is associated with reduced deontological decisions by means of its efficiency in decreasing the intensity of negative emotions in moral dilemmas.

This literature was further extended by a recently reported series of studies (Lee & Gino, 2015). Reappraisal and suppression were compared in these studies, using measures of emotion regulation choice (i.e., willingness to use one of the strategies) (Study 1) or manipulating these strategies either in moral dilemmas (Studies 2a, 2b and 4) or during emotion induction (i.e., watching aversive images) that preceded moral dilemmas (Study 3). Across studies, there was evidence that emotion regulation reduces deontological decisions. While there was some evidence for reappraisal (i.e., participants preferred reappraisal to suppression in the moral dilemmas used in Study 1; and using reappraisal reduced deontological decisions in Study 2a), suppression was more compellingly associated with reduced levels of deontological decisions (see Lee & Gino, 2015). However, reappraisal and suppression did not reduce self-reported negative emotions after dilemmas (Studies 2b and 3), although there was evidence of increased physiological activity (i.e., skin conductance level) in participants who used suppression in one of the studies (Study 2b) (see Lee & Gino, 2015). In addition, emotional arousal, as reflected by skin conductance level changes, was not a significant mediator of the relation between suppression or reappraisal and moral decisions. These results may seem at odds with predictions from the emotion regulation literature, indicating that reappraisal is more efficient than suppression in reducing negative emotions (for review see Gross, 2002, 2013) and their biases on decision making (Heilman et al., 2010; Miu & Crişan, 2011; Panno, Lauriola, & Figner, 2013). In addition, these results are in contrast with the view that decreases in emotional arousal underlie the influence of emotion regulation on moral decision making (Szekely & Miu, 2015). However, the failure to find effects of emotion regulation on self-reported emotions in this study may be related to the global measure of affect employed in this study (Lee & Gino, 2015). Assessing affect change at the end of a battery of moral dilemmas may have limited power to show the affective outcomes of emotion regulation, in comparison to repeated measures of emotional arousal and emotional valence after each dilemma (Szekely & Miu, 2015).

These studies generally support the view that emotion regulation plays an important role in moral decision making. This line of research is still new and awaits integration in mainstream theories on moral decision making (see Helion & Pizarro, 2014). However, recent progresses in moral psychology and the emotion regulation literature suggest several interesting avenues for future research.

[1] In this study (Szekely & Miu, 2015), participants chose between deontological and utilitarian alternatives. Therefore, fewer deontological choices imply more utilitarian choices in moral dilemmas. However, we prefer to describe the effect of reappraisal in relation to level of deontological choices in order to suggest that reappraisal reduces emotionally driven deontological biases in moral decision making.

FUTURE PERSPECTIVES

Research using moral dilemmas has compellingly supported the role of emotions in moral decision making, and opened perspectives for studies on emotion regulation. However, moral dilemmas describe extreme situations with artificially limited choices, which may seem improbable to participants. The credibility of moral dilemmas may be increased by drawing attention to similar situations from reality (e.g., the case of a mother who decided between being treated for cancer and carry pregnancy to term) (see Elam & Tamura, 2015) or using movies to help participants imagine moral dilemmas (e.g., Study 2b from Lee & Gino, 2015). In addition, participants' engagement in moral dilemmas may also be enhanced using virtual reality simulations (Navarrete, Mcdonald, Mott, & Asher, 2011; Patil, Cogoni, Zangrando, Chittaro, & Silani, 2014). However, even by increasing their realism, moral dilemmas bear little resemblance to moral choices in our everyday life and have limited ecological validity (Bauman, Mcgraw, Bartels, & Warren, 2014). Therefore, future studies on emotion and emotion regulation must increasingly consider other measures of moral decision making. Pioneering such work, a recent field study (Hofmann, Wisneski, Brandt, & Skitka, 2014) sampled everyday experience via smartphone questionnaires in which participants were asked whether they committed, were the target of, witnessed or learned about a moral or immoral act within the past hour. This experience sampling approach (Csikszentmihalyi & Larson, 1987) was successfully used to describe the influence of religiosity and political orientation on everyday moral behavior (see Hofmann et al., 2014) and opens perspectives for future research on emotion, emotion regulation and moral behavior (Teper, Zhong, & Inzlicht, 2014).

Another issue that could be tackled by future studies is related to understanding the multidimensional and dynamic relations between emotional experience and moral decision making. Participants report multiple emotions in moral dilemmas, some of which (e.g., fear, disgust) are associated with deontological decisions, whereas others (e.g., regret) are related to utilitarian decisions (Szekely & Miu, 2015). The presence of multiple emotions suggests that they may play different roles in decision making, signalling potential transgressions of norms and enhancing motivational comparisons between alternative courses of action (Cushman et al., 2010; Moll & de Oliveira-Souza, 2007; Szekely & Miu, 2015). In addition, emotional experience may change during the decision making process, from the initial moral appraisal of the situation and throughout deliberation to settling on a response. In order to describe the dynamics of emotional arousal during decision making, future studies may use continuous measures such as "the affect rating dial" (Ruef & Levenson, 2007). This approach may also contribute to more reliable correlations between emotional experience and physiological changes (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005).

In this chapter, we suggested that there may be a shift from early "alarm-bell" to subsequent "currency-like" emotions in the decision making process (i.e., initial moral appraisal-deliberation-decision). The choice of emotion regulation strategies and their efficiency may be crucial in the success of this transition. A recent study (Lee & Gino, 2015) investigated emotion regulation choice in moral decision making and found a general preference for reappraisal over suppression in a moral dilemma. These timely results extend

to moral psychology a topic that only recently emerged in the emotion regulation literature. Comparing emotion regulation choice in stressful situations of varying intensities, it was reported that people prefer reappraising low intensity stressors and distracting from high intensity stressors (Sheppes & Gross, 2011). However, emotion regulation efficiency is related not only to the choice of a particular emotion regulation strategy, but also to the stage of emotion generation when emotion regulation is implemented and the intensity of emotional responses at that stage (Sheppes & Gross, 2014). Therefore, future studies might investigate emotion regulation choice and efficiency at varying stages in the moral decision making process. Finally, future studies might describe atypical patterns of moral decision making in psychiatric conditions. Research on psychopathy and antisocial traits has uncovered important links between emotion and moral decision making (e.g., Bartels & Pizarro, 2011; Cima et al., 2010; Patil, 2015; Tassy, Oullier, Cermolacce, & Wicker, 2009) and we argue that describing moral decision "anomalies" (Camerer & Thaler, 1995) in other forms of psychopathology may continue to generate interesting perspectives. This avenue for future research is also promising in light of recent evidence showing that emotion dysregulation (Gross & Jazaieri, 2014) and decision making problems (Paulus, 2007) are transdiagnostic symptoms that characterize many forms of psychopathology. Emotion regulation failures (i.e., not regulating emotions when it would be useful to do so) and emotion misregulation (i.e., using strategies that are inappropriate for current emotion regulation goals) may have differential effects on emotion and moral decision making. In conclusion, research on emotion regulation has rapidly developed and increased our understanding of the interplay between emotion and cognition in moral decision making. Inspired by the exuberant literature on emotion regulation, this line of research will probably continue to expand, with important implications for cognitive psychology and neuroscience.

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REFERENCES

Bartels, D. M., & Pizarro, D. A. (2011). The mismeasure of morals: antisocial personality traits predict utilitarian responses to moral dilemmas. *Cognition, 121*(1), 154–161. doi:10.1016/j.cognition.2011.05.010

Bauman, C. W., Mcgraw, A. P., Bartels, D. M., & Warren, C. (2014). Revisiting external validity: Concerns about trolley problems and other sacrificial dilemmas in moral psychology. *Social and Personality Psychology Compass, 9,* 536–554. doi:10.1111/spc3.12131

Bechara, A., Damasio, H., & Damasio, A. R. (2000). Emotion, decision making and the orbitofrontal cortex. *Cerebral Cortex, 10,* 295–307. doi:10.1093/cercor/10.3.295

Blanchette, I., & Richards, A. (2010). The influence of affect on higher level cognition: A review of research on interpretation, judgement, decision making and reasoning. *Cognition & Emotion*, *24*(4), 561–595. doi:10.1080/02699930903132496

Camerer, C., & Thaler, R. H. (1995). Anomalies: Ultimatums, dictators and manners. *Journal of Economic Perspectives*, *9*(2), 209–219. doi:10.1257/jep.9.2.209

Cameron, C. D., Lindquist, K. A., & Gray, K. (2015). A constructionist review of morality and emotions: No evidence for specific links between moral content and discrete emotions. *Personality and Social Psychology Review*. doi:10.1177/1088868314566683

Choe, S. Y., & Min, K. (2011). Who makes utilitarian judgments ? The influences of emotions on utilitarian judgments. *Judgment and Decision Making*, *6*(7), 580–592.

Christensen, J. F., Flexas, A., Calabrese, M., Gut, N. K., & Gomila, A. (2014). Moral judgment reloaded: A moral dilemma validation study. *Frontiers in Psychology*, *5*, 607. doi:10.3389/fpsyg.2014.00607

Christensen, J. F., & Gomila, A. (2012). Moral dilemmas in cognitive neuroscience of moral decision-making: A principled review. *Neuroscience and Biobehavioral Reviews*, *36*(4), 1249–1264. doi:10.1016/j.neubiorev.2012.02.008

Ciaramelli, E., Muccioli, M., Làdavas, E., & di Pellegrino, G. (2007). Selective deficit in personal moral judgment following damage to ventromedial prefrontal cortex. *Social Cognitive and Affective Neuroscience*, *2*(2), 84–92. doi:10.1093/scan/nsm001

Cima, M., Tonnaer, F., & Hauser, M. D. (2010). Psychopaths know right from wrong but don't care. *Social Cognitive and Affective Neuroscience*, *5*(1), 59–67. doi:10.1093/scan/nsp051

Conway, P., & Gawronski, B. (2013). Deontological and utilitarian inclinations in moral decision making: A process dissociation approach. *Journal of Personality and Social Psychology*, *104*(2), 216–235. doi:10.1037/a0031021

Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the Experience Sampling Method. *Journal of Nervous and Mental Disease*, *175*, 526–536.

Cushman, F., Gray, K., Gaffey, A., & Mendes, W. B. (2012). Simulating murder: The aversion to harmful action. *Emotion*, *12*(1), 2–7. doi:10.1037/a0025071

Cushman, F., & Greene, J. D. (2011). Finding faults: How moral dilemmas illuminate cognitive structure. *Social Neuroscience*, *7*(3), 269–279. doi:10.1080/17470919.2011.614000

Cushman, F., Young, L., & Greene, J. D. (2010). Our multi-system moral psychology: Towards a consensus view. In J. Doris, G. Harman, S. Nichols, J. Prinz, W. Sinnott-Armstrong, & S. Stich (Eds.), *The Oxford Handbook of Moral Psychology* (pp. 47–72). Oxford, UK: Oxford University Press.

Elam, S., & Tamura, T. (2015). 'I'm not going to kill a healthy baby because I'm sick'. Retrieved February 2, 2015, from http://edition.cnn.com/2015/01/16/us/mom-with-cancer/index.html?sr=fb011715MomCancer10aVODtopLink

Feinberg, M., Willer, R., Antonenko, O., & John, O. P. (2012). Liberating reason from the passions: Overriding intuitionist moral judgments through emotion reappraisal. *Psychological Science*, *23*(7), 788–795. doi:10.1177/0956797611434747

Garnefski, N., & Kraaij, V. (2007). The Cognitive Emotion Regulation Questionnaire. *European Journal of Psychological Assessment*, *23*(3), 141–149. doi:10.1027/1015-5759.23.3.141

Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S., & Ditto, P. H. (2013). Moral Foundations Theory: The pragmatic validity of moral pluralism. *Advances in Experimental Social Psychology*, *47*, 55–130.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*(5), 1029–1046. doi:10.1037/a0015141

Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of Personality and Social Psychology*, *101*(2), 366–385. doi:10.1037/a0021847

Greene, J. D. (2005). Emotion and cognition in moral judgment: Evidence from neuroimaging. In J.-P. Changeux, A. R. Damasio, W. Singer, & Y. Christen (Eds.), *Neurobiology of human values* (pp. 57–66). Berlin Heidelberg: Springer-Verlag.

Greene, J. D. (2007). The secret joke of Kant's soul. In W. Sinnott-Armstrong (Ed.), *Moral Psychology, Vol. 3: The Neuroscience of Morality: Emotion, Disease and Development* (pp. 35–79). Cambridge, MA: MIT Press.

Greene, J. D. (2009). Dual-process morality and the personal/impersonal distinction: A reply to McGuire, Langdon, Coltheart, and Mackenzie. *Journal of Experimental Social Psychology*, *45*(3), 581–584. doi:10.1016/j.jesp.2009.01.003

Greene, J. D. (2014). The Cognitive Neuroscience of Moral Judgment. In M. S. Gazzaniga (Ed.), *The Cognitive Neurosciences V*. Cambridge, MA: MIT Press.

Greene, J. D. (2015). The rise of moral cognition. *Cognition*, *135*, 39–42. doi:10.1016/j.cognition.2014.11.018

Greene, J. D., Morelli, S. a, Lowenberg, K., Nystrom, L. E., & Cohen, J. D. (2008). Cognitive load selectively interferes with utilitarian moral judgment. *Cognition*, *107*(3), 1144–1154. doi:10.1016/j.cognition.2007.11.004

Greene, J. D., Nystrom, L. E., Engell, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron*, *44*(2), 389–400. doi:10.1016/j.neuron.2004.09.027

Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, *293*(5537), 2105–2108. doi:10.1126/science.1062872

Greene, J., & Haidt, J. (2002). How (and where) does moral judgment work? *Trends in Cognitive Sciences*, *6*(12), 517–523.

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*(3), 271–299. doi:10.1037/1089-2680.2.3.271

Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, *39*(3), 281–291. doi:10.1017.S0048577201393198

Gross, J. J. (2013). Emotion regulation: Taking stock and moving forward. *Emotion*, *13*(3), 359–365. doi:10.1037/a0032135

Gross, J. J. (2014). Emotion regulation: Conceptual and empirical foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation (2nd ed.)* (pp. 3–20). New York, NY: Guilford.

Gross, J. J., & Jazaieri, H. (2014). Emotion, Emotion Regulation, and Psychopathology: An Affective Science Perspective. *Clinical Psychological Science*, *2*(4), 387–401. doi:10.1177/2167702614536164

Gross, J. J., Sheppes, G., & Urry, H. L. (2011). Emotion generation and emotion regulation: A distinction we should make (carefully). *Cognition & Emotion*, *25*(5), 765–781. doi:10.1080/02699931.2011.555753

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, *108*(4), 814–834. doi:10.1037/0033-295X.108.4.814

Haidt, J. (2003). The emotional dog does learn new tricks: A reply to Pizarro and Bloom (2003). *Psychological Review*, *110*(1), 197–198. doi:10.1037/0033-295X.110.1.197

Haidt, J. (2007). The new synthesis in moral psychology. *Science*, *316*(5827), 998–1002. doi:10.1126/science.1137651

Haidt, J., & Hersh, M. A. (2001). Sexual morality: The cultures and emotions of conservatives and liberals. *Journal of Applied Social Psychology*, *31*(1), 191–221. doi:10.1111/j.1559-1816.2001.tb02489.x

Harenski, C. L., & Hamann, S. (2006). Neural correlates of regulating negative emotions related to moral violations. *NeuroImage*, *30*(1), 313–324. doi:10.1016/j.neuroimage.2005.09.034

Heilman, R. M., Crişan, L. G., Houser, D., Miclea, M., & Miu, A. C. (2010). Emotion regulation and decision making under risk and uncertainty. *Emotion*, *10*(2), 257–265. doi:10.1037/a0018489

Helion, C., & Pizarro, D. A. (2014). Beyond dual-processes: The interplay of reason and emotion in moral judgment. In N. Levy & J. Clausen (Eds.), *Handbook for Neuroethics* (pp. 109–125). Netherlands: Springer. doi:10.1007/978-94-007-4707-4_160

Hofmann, W., Wisneski, D. C., Brandt, M. J., & Skitka, L. J. (2014). Morality in everyday life. *Science*, *345*(6202), 1340–1343. doi:10.1126/science.1251560

Horberg, E. J., Oveis, C., & Keltner, D. (2011). Emotions as moral amplifiers: An appraisal tendency approach to the influences of distinct emotions upon moral judgment. *Emotion Review*, *3*(3), 237–244. doi:10.1177/1754073911402384

Hutcherson, C. A, & Gross, J. J. (2011). The moral emotions: A social-functionalist account of anger, disgust, and contempt. *Journal of Personality and Social Psychology*, *100*(4), 719–737. doi:10.1037/a0022408

Jack, A. I., Robbins, P., Friedman, J. P., & Meyers, C. D. (2014). More than a feeling: Counterintuitive effects of compassion on moral judgment. In J. Sytsma (Ed.), *Advances in Experimental Philosophy of Mind* (pp.102-125). London: Bloomsbury.

Jamieson, J. P., Mendes, W. B., Blackstock, E., & Schmader, T. (2010). Turning the knots in your stomach into bows: Reappraising arousal improves performance on the GRE. *Journal of Experimental Social Psychology*, *46*(1), 208–212. doi:10.1016/j.jesp.2009.08.015

Kant, I. (1785/1959). *Foundations of the metaphysics of morals*. Indiannapolis: Bobbs-Merril.

Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., & Damasio, A. (2007). Damage to the prefrontal cortex increases utilitarian moral judgements. *Nature*, *446*(7138), 908–911. doi:10.1038/nature05631

Kohlberg, L. (1981). *Essays on moral development. Vol. 1. The philosophy of moral development: Moral stages and the idea of justice*. San Francisco, CA: Harper & Row.

Landy, J. F., & Goodwin, G. P. (2015). Does incidental disgust amplify moral judgment? A meta-analytic review of experimental evidence. *Perspectives on Psychological Science*.

Lee, J. J., & Gino, F. (2015). Poker-faced morality: Concealing emotions leads to utilitarian decision making. *Organizational Behavior and Human Decision Processes*, *126*, 49–64. doi:10.1016/j.obhdp.2014.10.006

Lemmon, E. J. (1962). Moral Dilemmas. *Philosophical Review*, *71*(2), 139–158.

Lowenstein, G., & Lerner, J. S. (2003). The role of affect in decision making. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of Affective Science* (pp. 619–642). Oxford University Press.

Martin, R. C., & Dahlen, E. R. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress, and anger. *Personality and Individual Differences*, *39*(7), 1249–1260. doi:10.1016/j.paid.2005.06.004

Martins, A. T., Esteves, F., & Reis, A. (2012). Atypical moral judgment following traumatic brain injury. *Judgment and Decision Making*, *7*(4), 478–487.

Mauss, I. B., Levenson, R. W., McCarter, L., Wilhelm, F. H., & Gross, J. J. (2005). The tie that binds? Coherence among emotion experience, behavior, and physiology. *Emotion*, *5*(2), 175–190. doi:10.1037/1528-3542.5.2.175

McClure, S. M., Botvinick, M. M. M., Yeung, N., Greene, J. D., & Cohen, J. D. (2007). Conflict monitoring in cognition-emotion competition. In *Handbook of emotion regulation* (pp. 204–226). New York, NY: Guilford Press.

McGuire, J., Langdon, R., Coltheart, M., & Mackenzie, C. (2009). A reanalysis of the personal/impersonal distinction in moral psychology research. *Journal of Experimental Social Psychology*, *45*(3), 577–580. doi:10.1016/j.jesp.2009.01.002

Mill, J. S. (1861/1998). Utilitarianism. In R. Crisp (Ed.), *Routledge philosophy guidebooks*. London: Routledge. doi:10.1080/00201746708601495

Miller, R., & Cushman, F. (2013). Aversive for me, wrong for you: First-person behavioral aversions underlie the moral condemnation of harm. *Social and Personality Psychology Compass*, *7*(10), 707–718.

Miu, A. C., & Crișan, L. G. (2011). Cognitive reappraisal reduces the susceptibility to the framing effect in economic decision making. *Personality and Individual Differences*, *51*(4), 478–482. doi:10.1016/j.paid.2011.04.020

Miu, A. C., Miclea, M., & Houser, D. (2008). Anxiety and decision-making: Toward a neuroeconomics perspective. *Advances in Health Economics and Health Services Research*, *20*, 55–84. doi:10.1016/S0731-2199(08)20003-8

Moll, J., & de Oliveira-Souza, R. (2007). Moral judgments, emotions and the utilitarian brain. *Trends in Cognitive Sciences*, *11*(8), 319–321. doi:10.1016/j.tics.2007.06.001

Moll, J., de Oliveira-Souza, R., & Zahn, R. (2008). The neural basis of moral cognition: Sentiments, concepts, and values. *Annals of the New York Academy of Sciences*, *1124*, 161–180. doi:10.1196/annals.1440.005

Moll, J., Zahn, R., de Oliveira-Souza, R., Krueger, F., & Grafman, J. (2005). The neural basis of human moral cognition. *Nature Reviews. Neuroscience*, *6*, 799–809. doi:10.1038/nrn1768

Moore, A. B., Clark, B. a, & Kane, M. J. (2008). Who shalt not kill? Individual differences in working memory capacity, executive control, and moral judgment. *Psychological Science*, *19*(6), 549–557. doi:10.1111/j.1467-9280.2008.02122.x

Moretto, G., Làdavas, E., Mattioli, F., & di Pellegrino, G. (2010). A psychophysiological investigation of moral judgment after ventromedial prefrontal damage. *Journal of Cognitive Neuroscience*, *22*(8), 1888–1899. doi:10.1162/jocn.2009.21367

Navarrete, C. D., Mcdonald, M. M., Mott, M. L., & Asher, B. (2011). Virtual morality : Emotion and action in a simulated three-dimensional "trolley problem". *Emotion*, *12*(2), 364-370. doi:10.1037/a0025561

Okon-Singer, H., Hendler, T., Pessoa, L., & Shackman, A. J. (2015). The neurobiology of emotion-cognition interactions: Fundamental questions and strategies for future research. *Frontiers in Human Neuroscience*, *9*, 58. doi:10.3389/fnhum.2015.00058

Panno, A., Lauriola, M., & Figner, B. (2013). Emotion regulation and risk taking: Predicting risky choice in deliberative decision making. *Cognition & Emotion*, *27*(2), 326–334. doi:10.1080/02699931.2012.707642

Pastötter, B., Gleixner, S., Neuhauser, T., & Bäuml, K.-H. T. (2013). To push or not to push? Affective influences on moral judgment depend on decision frame. *Cognition*, *126*(3), 373–377. doi:10.1016/j.cognition.2012.11.003

Patil, I. (2015). Trait psychopathy and utilitarian moral judgment: The mediating role of action aversion. *Journal of Cognitive Psychology*. doi:10.1080/20445911.2015.1004334

Patil, I., Cogoni, C., Zangrando, N., Chittaro, L., & Silani, G. (2014). Affective basis of judgment-behavior discrepancy in virtual experiences of moral dilemmas. *Social Neuroscience*, *9*(1), 94-107. doi: 10.1080/17470919.2013.870091

Paulus, M. P. (2007). Decision-making dysfunctions in psychiatry - altered homeostatic processing? *Science*, *318*(5850), 602–606. doi:10.1126/science.1142997

Pessoa, L. (2008). On the relationship between emotion and cognition. *Nature Reviews. Neuroscience*, *9*(2), 148–158. doi:10.1038/nrn2317

Petrinovich, L., O'Neill, P., & Jorgensen, M. (1993). An empirical study of moral intuitions: Toward an evolutionary ethics. *Journal of Personality and Social Psychology*,*64*(3),467-478. doi:10.1037/0022-3514.64.3.467

Piaget, J. (1932). *The moral judgement of the child*. Harmondsworth: Penguin.

Piazza, J. (2012). "If you love me keep my commandments": Religiosity increases preference for rule-based moral arguments. *International Journal for the Psychology of Religion*, *22*(4), 285–302. doi:10.1080/10508619.2011.638598

Pizarro, D. A., & Bloom, P. (2003). The intelligence of the moral intuitions: A comment on Haidt (2001). *Psychological Review*, *110*(1), 193–196. doi:10.1037/0033-295X.110.1.193

Prehn, K., & Heekeren, H. R. (2009). Moral judgment and the brain: A functional approach to the question of emotion and cognition in moral judgment integrating psychology, neuroscience and evolutionary biology. In J. Verplaetse, J. Schrijver, S. Vanneste, & J. Braeckman (Eds.), *The Moral Brain* (pp. 129-154). Dordrecht: Springer. doi:10.1007/978-1-4020-6287-2

Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*, *79*(3), 410–424.

Rozin, P., Lowery, L., Imada, S., & Haidt, J. (1999). The CAD triad hypothesis: A mapping between three moral emotions (contempt, anger, disgust) and three moral codes (community, autonomy, divinity). *Journal of Personality and Social Psychology*, *76*(4), 574–586. doi:10.1037/0022-3514.76.4.574

Ruef, A. M., & Levenson, R. W. (2007). Continuous measurement of emotion: The affect rating dial. In J. A. Coan & J. J. B. Allen (Eds.), *The Handbook of Emotion Elicitation and Assessment* (pp. 286–297). New York, NY: Oxford University Press.

Sheppes, G., & Gross, J. J. (2011). Is timing everything? Temporal considerations in emotion regulation. *Personality and Social Psychology Review*, *15*(4), 319–331. doi:10.1177/1088868310395778

Sheppes, G., & Gross, J. J. (2012). Emotion regulation effectiveness: What works when. In H. A. Tannen & J. M. Suls (Eds.), *Handbook of Psychology, volume five: Personality and Social Psychology* (pp. 391–406). New York, NY: Wiley.

Sheppes, G., & Gross, J. J. (2014). Emotion generation and emotion regulation: Moving beyond traditional dual-process accounts. In B. Gawronski, J. W. Sherman, & Y. Trope (Eds.), *Dual-Process Theories of the Social Mind* (pp. 483–493). New York, NY: Guilford Press.

Sheppes, G., Scheibe, S., Suri, G., & Gross, J. J. (2011). Emotion-regulation choice. *Psychological Science*, *22*(11), 1391–1396. doi:10.1177/0956797611418350

Starcke, K., Polzer, C., Wolf, O. T., & Brand, M. (2011). Does stress alter everyday moral decision-making? *Psychoneuroendocrinology*, *36*(2), 210–219. doi:10.1016/j.psyneuen.2010.07.010

Strohminger, N., Lewis, R. L., & Meyer, D. E. (2011). Divergent effects of different positive emotions on moral judgment. *Cognition*, *119*(2), 295–300. doi:10.1016/j.cognition.2010.12.012

Szekely, R. D., & Miu, A. C. (2015). Incidental emotions in moral dilemmas: The influence of emotion regulation. *Cognition & Emotion*, *29*(1), 64–75. doi:10.1080/02699931.2014.895300

Tamir, M. (2009). What do people want to feel and why ? Pleasure and utility in emotion regulation. *Current Directions in Psychological Science*, *18*(2), 101–105.doi:10.1111/j.1467-8721.2009.01617.x

Tassy, S., Oullier, O., Cermolacce, M., & Wicker, B. (2009). Do psychopathic patients use their DLPFC when making decisions in moral dilemmas? *Molecular Psychiatry*, *14*(10), 908–909. doi:10.1038/mp.2009.71

Tassy, S., Oullier, O., Duclos, Y., Coulon, O., Mancini, J., Deruelle, C., … Wicker, B. (2012). Disrupting the right prefrontal cortex alters moral judgement. *Social Cognitive and Affective Neuroscience*, *7*(3), 282–288. doi:10.1093/scan/nsr008

Tassy, S., Oullier, O., Mancini, J., & Wicker, B. (2013). Discrepancies between judgment and choice of action in moral dilemmas. *Frontiers in Psychology*, *4*, 250. doi:10.3389/fpsyg.2013.00250

Teper, R., Zhong, C., & Inzlicht, M. (2014). How emotions shape moral behavior: Some answers (and questions) for the field of moral psychology. *Social and Personality Psychology Compass*, *9*(1), 1–14. doi:10.1111/spc3.12154

Thomson, J. J. (1985). The trolley problem. *The Yale Law Journal*, *94*(6), 1395–1415.

Valdesolo, P., & DeSteno, D. (2006). Manipulations of emotional context shape moral judgment. *Psychological Science*, *17*(6), 476–477. doi:10.1111/j.1467-9280.2006.01731.x

Wheatley, T., & Haidt, J. (2005). Hypnotic disgust makes moral judgments more severe. *Psychological Science*, *16*(10), 780–784. doi:10.1111/j.1467-9280.2005.01614.x

Wolgast, M., Lundh, L. G., & Viborg, G. (2011). Cognitive reappraisal and acceptance: An experimental comparison of two emotion regulation strategies. *Behaviour Research and Therapy*, *49*(12), 858–866. doi:10.1016/j.brat.2011.09.011

Youssef, F. F., Dookeeram, K., Basdeo, V., Francis, E., Doman, M., Mamed, D., … Legall, G. (2012). Stress alters personal moral decision making. *Psychoneuroendocrinology*, *37*(4), 491–498. doi:10.1016/j.psyneuen. 2011.07.017