Cognition 146 (2016) 158–171

Contents lists available at ScienceDirect

Cognition

journal homepage: www.elsevier.com/locate/COGNIT

The sadistic trait predicts minimization of intention and causal responsibility in moral judgment

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ARTICLE INFO

Article history:
Received 5 November 2014
Revised 15 September 2015
Accepted 16 September 2015
Available online 26 September 2015

Keywords:
Moral Judgment
Sadism
Dark Triad
Intention
Causal responsibility

ABSTRACT

The present research tests the hypothesis that specific socially aversive traits—subclinical sadism in particular—are associated with an impaired judgment of moral wrongness, guilt, and punishment in various moral scenarios manipulating intent, cause and consequence of harm. In three online studies (total $N = 1069$), participants completed a battery of tests scaled to assess sadism and the Dark Triad constructs, then faced different situations involving moral issues (attempted harm, intentional harm, accidental harm). Study 1 revealed that a sadistic personality trait was associated with minimization of the importance of harmful intent in moral judgment. Study 2 showed that a sadistic personality trait predicted minimization of the importance of causal mechanisms to harmful consequences in moral judgment. Study 3 showed that these effects were mediated by enjoyment of cruelty, a characteristic unique to sadists. In the light of Cushman's (2008) two-process model of moral judgment, this set of studies provides the first evidence that deficits in the integration of the theory of mind and causality can be observed in personality traits. The independent predictive value of sadism highlights that features other than emotional deficits are essential in explaining impaired moral evaluations.

1. Introduction

Moral judgment is doubtless one of the most studied topics in cognitive sciences, either by experimental philosophers or psychologists (e.g., Baron & Ritov, 2009; Cushman, 2008; Foot, 1967; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Haidt, 2001; Kohlberg, 1969; Turiel, 1983). Although the topic has led to countless experimental studies, those focusing on how personality traits predict such judgments are quite recent and therefore scarce. The present paper focuses on sadism, a personality trait considered socially aversive, and explores how it shapes judgments of wrongness, guilt and punishment when faced with different moral scenarios, manipulating intention and causal responsibility. Beyond its theoretical interest, the present issue (and more broadly the study of personality traits and their implications in moral judgments) is important insofar as it provides new insights into the understanding of certain moral violations, with potential applications in the medical or judicial domains.

1.1. Intention and causal responsibility in moral judgment

Morality is one of the most decisive acquisitions of humankind. It lies at the root of a collectively shared set of rules that bind individuals together and reinforce altruistic dispositions and cooperativeness (Tomasello & Vaish, 2013). The moral regulatory function of human societies is delegated to each individual who is essentially able to judge whether a social conduct can be assumed to be in compliance with moral expectations (Hauser, 2006).

When it comes to evaluating the moral wrongness of a behavior that has caused a detrimental outcome, people rely on their impressions about the *mental state* of the perpetrator, while the merited punishment and blame for such an action depend on both *causal responsibility* and mental state (Cushman, 2008). Forming impressions about the agent's mental state involves inferring her intentional or non-intentional mental state prior to the harmful event. Being held causally responsible means being accountable for having taken part—intentionally or not—in the causal mechanism that gave rise to the harmful event. When performing judgments of guilt and deserved punishment for a harmful event, people rely independently on the intentional and the causal

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http://dx.doi.org/10.1016/j.cognition.2015.09.014
0010-0277/

components of morality. The independence of these mechanisms is referred to as the two-process model of moral judgment (Cushman, 2008). For instance, people do not allocate punishment to an agent attempting to harm someone when the intended harm occurs outside the malicious agent's causal responsibility, despite his/her malevolent intention. Conversely, people allocate punishment to an agent who attempts to harm someone without consecutive harmful outcomes to deplore. In the first case, the harmful consequence triggers an analysis of causal responsibility that impedes the intentional analysis, therefore leading to the exoneration of the malicious agent. In the second case, the absence of harmful consequence does not trigger a causal analysis because of the absence of harmful consequence. Now, it triggers a mental state analysis which gives rise to a judgment of deserved punishment of the malicious agent.

Intention is a pivotal component for assessing moral events (Shultz & Wells, 1985). It is so essential that moral disapprobation may remain to the same extent when harmful intent is followed by harmless consequences, suggesting that the mere presence of intention can sometimes be sufficient to trigger strong moral reactions. Hence, while moral blame is consistently attributed in cases of a failed attempt to harm (intention present), forgiveness is more often displayed in cases of unintended or accidental harm (intention absent, see Young & Saxe, 2009).

A moral condemnation elicited by a negative intention is qualified by the emotional responses to this attempted moral violation. The neural basis of emotional processing has been evidenced as the starting place of moral aversion caused by harmful intent. Young et al. (2010) showed that participants with damage to the ventromedial prefrontal cortex (vmPFC), who thus exhibit a deficit in emotional response and regulation, undervalued the importance of a failed attempt to harm in moral judgments, judging them as more permissible than normal control participants.[2] This suggests, as a result, that vmPFC participants 'may not experience the aversive emotions that normally arise from perceiving that one person intends to harm another' (Young et al., 2010, p. 5). If a muted emotional aversion to failed attempted harm makes vmPFC patients judge these actions as more morally permissible, the same pattern of judgment is likely to be found in nonclinical populations displaying callous-unemotional traits.

1.2. Dark personality and morality

Evidences linking dark personality traits to moral impairments were provided by both clinical and non-clinical research, especially in psychopathic people. Numerous studies suggest that dark personalities' moral impairment is attributed to emotional regulation deficiencies; and the latter component is pivotal for moral judgment (Cima, Tonnaer, & Hauser, 2010; Haidt, 2001). Blair (2007) observed that clinical psychopaths have difficulty distinguishing between conventional transgressions (i.e., eating a T-bone steak with hands at a restaurant) and moral transgressions (i.e., throwing a T-bone steak into the face of a person at the restaurant), relative to non-psychopaths. Other studies have shown that psychopaths were found to endorse less harm/care and fairness moral foundations both at the clinical level (Aharoni, Antonenko, & Kiehl, 2011) and at the subclinical level (Glenn, Raine, & Schug, 2009). Different patterns of moral judgments were also evidenced in other harm-based scenarios. It was shown that clinical psychopaths found accidental harms more permissible than non-psychopaths, suggesting that these individuals failed to appreciate 'the emotional aspect of the victim's experience of harm' (Young, Koenigs, Kruepke, & Newman, 2012, p. 659).[3] In the context of utilitarianism, low-anxious psychopaths were found to be more utilitarian on personal dilemmas scenarios (usually implying to actively kill someone so as to save more people) than high-anxious psychopaths and non-psychopaths (Koenigs, Kruepke, Zeier, & Newman, 2012). Note that the relationship between psychopathy and utilitarian preference was not always confirmed by other studies with clinical populations (Cima et al., 2010; Glenn et al., 2009), although it was observed with non-clinical populations (Bartels & Pizarro, 2011; Djeriouat & Trémolière, 2014; Kahane, Everett, Earp, Farias, & Savulescu, 2015). All in all, these results strongly suggest that psychopathy is associated with an overall diminished moral appreciation.

Psychopathy has also been studied together with other closely-related traits encompassed under the label Dark Triad of personality (Paulhus & Williams, 2002). This measure comprises the most emblematic socially aversive traits—narcissism, Machiavellianism and psychopathy—that may be associated with an emotionally neglectful tendency toward harmful intent and causal responsibility in moral judgment. The Dark Triad personality traits reflect distinctive features as suggested by the different correlational patterns with the five factor model (see Jones & Paulhus, 2010). Narcissism refers to an unrealistic sense of superiority and uniqueness, and an exaggerated feeling of both self-pride and self-centeredness; Machiavellianism is associated with manipulative and exploitative tendencies, a cynical world view, and a disdain for conventional morality; subclinical psychopathy involves thrill-seeking impulses, insensitivity, and remorselessness. Although the Dark Triad components are associated with distinctive styles, they are characterized by both conceptual and empirical overlaps (Jones & Paulhus, 2010). The Dark Triad members share a common core of empathy deficits, although psychopathy appears to be the only independent predictor of affective empathy (Jonason & Krause, 2013). Empathy deficit as the hallmark of the Dark Triad was confirmed by the Jones and Figueredo's (2013) study showing that manipulation and callousness constitute the Dark core of these three personality styles (see also Book, Visser, & Volk, 2015, and their finding of a common core lacking Honesty/Humility).

1.3. Everyday sadism as a source of moral impairment

The literature on aversive personality traits has critically overlooked the sadistic trait; to date, the interplay between this specific trait and moral issues has remained almost unexplored. In its broad definition, subclinical sadism reflects the tendency of certain people to seek and enjoy opportunities for cruelty and brutality (Baumeister & Campbell, 1999; Taylor, 2009), as well as enjoying watching such behavior inflicted on others. The few data available show that sadism was found to predict unprovoked aggression (Buckels, Jones, & Paulhus, 2013; Reidy, Zeichner, & Seibert, 2011), antisocial behavior in secondary-school pupils (Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009), and an increased likelihood to hurt innocent people (Baumeister & Campbell, 1999; Nell, 2006). In the strict sense of the term, sadism does not subsume what emotion scientists refer to as *schadenfreude*. While sadism involves a stable trait characterized by a demeaning proclivity to experience enjoyment from the infliction or observation

[2] It is worthnoting that vmPFC participants were not fully blind to intention and consequences but that this failure to integrate a key component of morality is relative: they judged accidental harms as more permissible than when harm occurred intentionally (sensitivity to intention) and failed attempts to harm as more permissible than when harm occurred intentionally (sensitivity to consequences).

[3] Just as was the case with vmPFC participants (see Young et al., 2010), psychopaths showed some levels of sensitivity to both intention (overall, they found accidental harms more permissible than when harm occurred intentionally) and consequence (overall, they found failed attempts to harm more permissible than when harm occurred intentionally).

of the suffering, degradation and/or humiliation of others, *schadenfreude* constitutes one's ephemeral emotional experience of pleasure consecutive to others' deserved minor misfortunes for which one is not causally responsible (see Ben-Ze'ev, 2009).

It has recently been suggested that sadism should be included as an additive component of the Dark Triad of personality, labelled as the Dark Tetrad (Chabrol et al., 2009; Furnham, Richards, & Paulhus, 2013). If emotional callousness constitutes the key criterion that unites all the components of the Dark Tetrad, enjoyment of cruelty is the unique property that accounts for a distinction between everyday sadism and the other Dark components (Paulhus, 2014). While the interpersonal exploitative and manipulative nature of psychopathy and Machiavellianism indicate a purposeful or teleologically oriented social behavior (i.e. a set of adaptive behavioral tactics through which subclinical psychopaths and Machiavellians get their own way—see Jonason & Buss, 2012; Jonason, Li, Webster, & Schmitt, 2009), sadism appears to be more indicative of a non-goal exaltation where arousal-seeking orientation is pivotal, making sadism an even more socially disturbing behavior. This non-goal exaltation has been evidenced by Harenski, Thornton, Harenski, Decety, and Kiehl (2012) who found that, contrary to non-sadists, sexual sadists showed increased activity in the left amygdala (a region of the brain involved in sexual arousal and the reward system) in response to pictures evoking pain caused by another person, compared to pictures without any kind of pain. Therefore, sadism might be associated with a pattern of moral judgments that would go beyond the inhibition of emotional aversion experienced toward harmful intent or actual harm; the exciting experience associated with such a pattern of moral judgment would possibly add incrementally to the moral distortion.

Although sadism appears as the most divergent Dark components, some of its intrinsic properties converge with its counterparts, especially with psychopathy. Drawing on the features of the psychopathy checklist-revised (PCL-R, Hare, 1998), everyday sadism shares some phenotypic facets with psychopathy such as, for instance, the need for stimulation, impulsiveness, lack of empathy, or lack of remorse. In this perspective, demonstrating that sadism would play a significant role in moral impairment requires to study sadism in concert with the other components to control for the overlaps. If enjoyment of cruelty adds addictive predictive power above and beyond the variance of moral judgment already captured by the Dark Triad, then the diminished moral appreciation would not only be attributed to a lack of emotional empathy, but also to the disposition to derive pleasure from circumstances involving harmful outcomes or harmful intent. In other words, if certain people derive enjoyment rather than negative emotions from immoral situations, and that negative emotions are a prerequisite to drive moral condemnation, therefore such people would probably be more morally lenient. Because such enjoyment was observed at the behavioral level and occurred also when merely seeing people hurt by another person (Baumeister & Campbell, 1999; Nell, 2006), sadist's moral distortions would be not only observed at the moral evaluation level, but would be also visible on all the necessary components of moral judgment, that is, intention and causal responsibility.

The present paper aims to provide fresh insights into how individuals exhibiting marked traits of subclinical sadism react to moral transgressions as they are traditionally explored in the moral judgment field. To this end, we shall capitalize on different moral scenarios, manipulating intention[4] and consequence in Study 1, and causality in Study 2. Study 3 proposes to qualify the nature of the cognitive processes that lie behind sadists' abnormal moral judgments. We shall explore three non-exclusive explanatory factors of moral judgment, including judgments of moral wrongness, guilt, and punishment.[5] These quasi-experimental designs are aimed at disentangling the effect of intention, harmful consequences, and causality in judgments of wrongness, guilt, and punishment.

2. Study 1: Sadism and minimization of intention

Cross-pollinating the two-process model and the literature on aversive traits of personality, the first study explored the possibility that everyday sadism predicts a lack of integration of mental-based information into judgments of moral wrongness guilt, and punishment. Drawing on the two-process model, judgments of moral wrongness depend more on the mental state inference while judgments of guilt and deserved punishment depend more on the causal analysis. A malicious mental state is determinant to warrant outright moral condemnations (moral wrongness) even in the absence of harmful consequences, at least in a context of a normal moral evaluation. Importantly, socially aversive personality traits are not related to theory of mind incompetence (Blair, 2006; Dolan & Fullam, 2004; Richell et al., 2003); now, the ability to encode theory of mind information does not necessarily mean that people will rely on that information to make their judgment. This claim is corroborated by clinical studies showing that patients with emotional response deficits are aware of social and moral norms but do not necessarily rely on them when performing moral judgments (Anderson, Barrash, Bechara, & Tranel, 2006; Camille et al., 2004). Damage to the vmPFC was shown to give rise to a greater moral permissibility of failed attempt to harm in moral judgments (Young et al., 2010), suggesting that people with an inability to correctly regulate emotional responses take less account of the agent's intention when making moral judgments. This supports the fact that emotional responses elicited by harmful attempts are critical to integrate the intention of the agent. Interestingly, because lack of empathy is the common core of the Dark Tetrad (Paulhus, 2014), it is also likely to be associated with a lack of integration of the intentional information. This would in turn result in negative associations between all the components of the Dark Tetrad and judgment of moral wrongness on attempted harm and intentional harm. More importantly, because a disposition for enjoyment of cruelty could be associated with an extra source of moral impairment, we predicted that everyday sadism would be a negative independent predictor of intention-based morality above and beyond the dark components and measures of empathy. A second stage of analyses will directly compare sadists to non-sadists: If sadism leads to a partial denial of the intentional component to perform moral judgment, a difference between sadists and non-sadists is to be suspected in scenarios that make intention present, but not in scenario in which intention is absent.

2.1. Method

2.1.1. Participants and design

The 247 participants (151 women, mean age = 38 years, *SD* = 13) were recruited on Crowdflower platform to complete an online survey. They completed a battery of scaled tests assessing

[4] In our experiments, intention is considered the result of a combination of an explicit desired and foreseen outcome (e.g. Cushman, 2008).

[5] Within each moral situation, participants are asked to provide a judgment of moral wrongness as was the case for Cushman's first experimental study (2008), a judgment of how guilty the perpetrator should feel to assess the potential exculpatory orientation underlined by sadistic personality tendencies toward moral violations, and a judgment of deserved punishment to appraise the potential lack of retributive orientation following harm. The three aspects of evaluation presented above form an overall moral judgment.

sadism, Dark Triad traits and basic empathy. Participants were then presented with three scenarios displaying situations involving different types of harm (intentional harm, attempted harm and accidental harm). The order in which the scaled tests were presented was counterbalanced across participants.

2.2. Material and measures

2.2.1. Sadistic trait

To assess participants' sadistic propensities, we used the 10-item Short Sadistic Impulse Scale (O'Meara, Davies, & Hammond, 2011). Participants were instructed to indicate the extent to which they agreed or disagreed with each sentence (e.g., 'I enjoy seeing people hurt') using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) (α = .92).

2.2.2. Dark Triad traits

We used SD3, a 27-item measure of the Dark Triad (Jones & Paulhus, 2014) to assess participants' Dark Triad traits. This scale comprises three components to assess psychopathy (e.g. 'I like to get revenge on authorities') (α = .82), Machiavellianism (e.g. 'I like to use clever manipulation to get my way') (α = .81) and narcissism (e.g. 'I like to get acquainted with important people') (α = .75).

2.2.3. Empathy

Empathy was measured via the 20-item version of the Basic Empathy Scale (BES-20; Jolliffe & Farrington, 2006). The scale captures two components—the affective component and the cognitive component. The affective component assesses people's disposition to *feel* other people's emotional or physical suffering (e.g. 'After being with a friend who is sad about something, I usually feel sad') (α = .83) while the cognitive component taps the degree to which one is able to *understand* other people's emotional or physical suffering (e.g. 'I can understand my friend's happiness when she/he does well at something') (α = .79).[6]

2.2.4. Moral scenarios

The three scenarios were adapted from that of Cushman (2008) and Young et al. (2010) (the scenarios are available as Supplementary Material). The 'attempted harm' scenario displayed a situation in which somebody attempts to hurt someone but fails (negative intention, neutral outcome). The 'intentional harm' scenario displayed a situation in which somebody intends to hurt someone and succeeds (negative intention, negative outcome). The 'accidental harm' scenario displayed a situation in which somebody does not intend to hurt anyone but accidentally ends up harming someone (neutral intention, negative outcome). The framing of the scenarios was counterbalanced across types of harm, as well as the order of the three scenarios faced by each participant.

For each scenario, participants had to indicate on a 7-point scale (ranging from 1, Not at all, to 7, Totally) the extent to which they found that (1) the action was morally wrong, (2) the agent should feel guilty, and (3) the agent should be punished.

2.3. Results and discussion

Because all the aversive traits of the Dark Tetrad share the emotional deficit component, it was quite unsurprising that they were found positively linked one with each other. We therefore conducted tests of multicollinearity, looking at tolerance, VIF, and mean VIF. Serious multicollinearity concerns are detected when VIF (Variance Inflation Factor) exceeds 10 (Bowerman & O'Connell, 1990). All the indicators confirmed that there was no multicollinearity problems that would have prevented from running the subsequent statistical analyses (see notes in Table 1).[7]

Table 1
Associations of sadism and the SD3 with moral judgments (Study 1).

	Wrongness r (β)	Guilt r (β)	Punishment r (β)
Intentional harm			
Narc	−.24*** (−.07)	−.26*** (−.08)	−.21*** (−.04)
Mach	−.26*** (.04)	−.34*** (−.06)	−.29*** (.01)
Psych	−.49*** (−.14)	−.50*** (−.06)	−.48*** (−.02)
Sadism	−.52*** (−.32***)	−.53*** (−.31***)	−.58*** (−.48***)
Aff empathy	.33*** (−.04)	.33*** (−.01)	.34*** (−.01)
Cog empathy	.42*** (.24**)	.39*** (.21**)	.40*** (.19**)
Gender	.25***	.18**	.21**
Mean	6.23	6.2	6.13
SD	1.31	1.34	1.36
Attempted harm			
Narc	−.24*** (−.07)	−.22*** (−.05)	−.04 (.04)
Mach	−.27*** (−.06)	−.34*** (−.04)	−.20*** (−.12)
Psych	−.51*** (−.15)	−.51*** (−.12)	−.18** (.11)
Sadism	−.57*** (−.38***)	−.56*** (−.37***)	−.26*** (−.29**)
Aff empathy	.34*** (−.06)	.38*** (.07)	.12 (.04)
Cog empathy	.46*** (.30***)	.40*** (.18*)	.09 (−.04)
Gender	.17**	.09	.08
Mean	6.19	6.0	5.13
SD	1.34	1.35	1.66
Accidental harm			
Narc	−.13* (−.05)	.01 (.04)	−.14* (−.05)
Mach	−.21** (−.17*)	−.04 (−.10)	−.16* (−.07)
Psych	−.20** (−.08)	−.01 (−.09)	−.22** (−.12)
Sadism	−.16* (−.03)	−.06 (.21*)	−.20** (−.04)
Aff empathy	.07 (−.13)	.006 (−.06)	.09 (−.14)
Cog empathy	.15* (−.19*)	.04 (.09)	.19** (.21*)
Gender	.07	.09	.07
Mean	4.53	3.27	4.6
SD	2.09	1.72	1.98

Note: Narc = Narcissism; Mach = Machiavellianism; Psych = Psychopathy; Aff Empathy = Affective Empathy; Cog Empathy = Cognitive Empathy. Intercorrelations of aversive traits: narcissism-Machiavellianism, $r(247) = .30$, $p < .001$; narcissism-psychopathy, $r(247) = .46$, $p < .001$; narcissism-sadism, $r(247) = .29$, $p < .001$; Machiavellianism-psychopathy, $r(247) = .61$, $p < .001$; Machiavellianism-sadism, $r(247) = .51$, $p < .001$; psychopathy-sadism, $r(247) = .78$, $p < .001$. All tolerance values > .27, all VIFs < 3.69, average VIF = 2.30.

* $p < .05$.
** $p < .01$.
*** $p < 001$.

As reported in Table 1, all socially aversive personality styles were found to be negatively associated with moral wrongness on intentional, attempted, and accidental harm scenarios. Importantly, people exhibiting these tendencies estimated that the perpetrator should not feel guilty when intending to harm someone, regardless of the consequence. Socially aversive personality traits were found to be negatively associated with punishment for intentional, attempted and accidental harm scenarios (to a lesser extent for the latter scenario). Narcissism was the only component not associated with attempted harm.

Exploring whether sadistic traits predicted moral wrongness independently of an overlap with the Dark Triad, we performed multiple regression analyses with narcissism, Machiavellianism, psychopathy and sadism as predictors and moral judgments on the different scenarios as outcome variables (Statistics are

[6] This measure was included in Study 1 as an additional way to determinate that sadism predicted moral judgments above and beyond empathy considerations. Because the sadistic trait was always analyzed along with the other Dark traits, therefore already controlling for lack of empathy, we dropped that measure in the next studies.

[7] This verification was made for each of the studies reported, and confirmed no multicollinearity problems for any of them.

displayed in Table 1). We also controlled for gender, and cognitive and affective empathy. Importantly in regard to our predictions, of the Dark Tetrad, sadism was found to be the unique independent predictor of moral wrongness, guilt and punishment for the attempted harm and intentional harm scenarios. None of the estimators independently predicted moral judgments on accidental harm scenarios (but for Machiavellianism on judgments of moral wrongness and sadism on judgments of guilt).

To probe the pattern of differences in moral judgment depending on the degree of sadism, we compared participants displaying few signs of subclinical sadism (first tertile, referred to herein as non-sadists) and participants with marked subclinical sadism (third tertile, referred to herein as sadists). Participants who scored within these boundaries were excluded from the subsequent analyses. As displayed in Fig. 1, sadists were overall more lenient in their judgments than non-sadists.

Pairwise comparisons using the Mann–Whitney test[8] showed that sadists rated attempted harm as less morally wrong than did non-sadists, $U(169) = 1298.5$, $Z = -8.18$, $p < .001$, intentional harm as less morally wrong than non-sadists, $U(169) = 1372.5$, $Z = -7.97$, $p < .001$, and accidental harm as slightly less morally wrong than non-sadists, $U(169) = 2804$, $Z = -2.44$, $p = .015$.

Sadists found that the perpetrator should feel guilty to a lesser extent for attempted harm scenarios than did non-sadists, $U(169) = 1158.5$, $Z = -8.20$, $p < .001$, as well as for intentional harm scenarios, $U(169) = 1242.5$, $Z = -8.45$, $p < .001$. No difference was detected for accidental harm, $U(169) = 3016$, $Z = -1.77$, $p = .076$.

Finally, sadists considered that the perpetrator should be punished less severely than did non-sadists for attempted harm scenarios, $U(169) = 2321$, $Z = -4.01$, $p < .001$, for intentional harm, $U(169) = 1239.0$, $Z = -8.25$, $p < .001$, and for accidental harm, $U(169) = 2743.5$, $Z = -2.64$, $p = .008$.

So far our findings confirm that aversive personality traits predict minimization of harmful intent when making moral judgments. These findings afford new support to the decisive implication of emotional processing in judgments of harmful intent (Young & Saxe, 2009; Young et al., 2010), and suggest that these tendencies are linked to personality traits. Psychopathy and sadism were found to be the strongest correlates of the tendency to minimize the role of intention in moral judgment.

More important in regard to our purpose, we found that sadism independently predicted minimization of harmful intent even once cognitive and emotional empathy were controlled for. Bluntly put, sadism independently predicted moral judgment, and did it beyond emotional deficit (i.e., cognitive and empathy deficit). This is an important finding, highlighting that intention-based impairment is not merely sustained by emotional deficiencies; rather, it seems that other characteristics unique to sadism add to moral judgment variance.

Note that minimization of intention in sadists is not absolute, but relative to a minimal sadistic trait. As it can be clearly seen in Fig. 1, sadists were still less harsh for accidental scenarios than for both intentional and attempted harm scenarios, whatever the sort of judgment (all $ps < .001$), except for the comparison of judgments of punishment between attempted and accidental scenarios ($p = .18$). These differences suggest that people exhibiting marked traits of subclinical sadism are not totally impermeable to variations in intention.

Before going any further, we replicated Study 1 in order to consolidate our initial results.

[8] Because it was found that the assumption of normality in the distribution of sadism was not met, we conducted the non-parametric equivalent of the *t*-test.

2.4. Replication

The 265 participants (149 women, mean age = 36.8, $SD = 11.9$) were recruited on Crowdflower platform to complete an online survey. The Dark personality measures and the scenarios were the same as those used in Study 1. The framing of the scenarios was counterbalanced across types of harm, as well as the order of the three scenarios faced by each participant.

Table 2 displays Pearson's zero-order correlation coefficients between SD3, Sadism, Gender and each of the components of moral judgment evaluation. Just as in Study 1, all socially aversive personality styles were found to be negatively associated with moral wrongness on intentional and attempted harm scenarios (but for narcissism which was not associated to punishment for attempted harm scenarios).

We performed multiple regression analyses with narcissism, Machiavellianism, psychopathy, and sadism as predictors, and moral judgments on the different types of scenario as outcome variables. Controlling for gender, the results confirmed the findings from Study 1, highlighting that sadism was the only independent predictor of moral wrongness and guilt for intentional and attempted harm scenarios. In contrast to the previous results, sadism did not predict punishment for the attempted harm scenario, while it did for the intentional harm scenario, as found in Study 1. Also, sadism did not independently predict wrongness, guilt nor punishment for the accidental harm scenario.

As displayed in Fig. 2, sadists (third tertile) were overall less harsh in their judgments than non-sadists (first tertile), at least for judgments of moral wrongness and guilt.

Pairwise comparisons using the Mann–Whitney test showed that, similarly to Study 1, sadists rated attempted harm as less morally wrong than did non-sadists, $U(188) = 2774.5$, $Z = -5.0$, $p < .001$, intentional harm as less morally wrong than did non-sadists, $U(188) = 2784$, $Z = -5.40$, $p < .001$. Strikingly, sadists found accidental harm slightly more morally wrong than non-sadists, $U(188) = 5652.5$, $Z = 3.49$, $p < .001$.

Furthermore, sadists found that the perpetrator should feel less guilty for attempted harm than did non-sadists, $U(188) = 2357.5$, $Z = -5.99$, $p < .001$, and similarly for intentional harm, $U(188) = 2783$, $Z = -5.36$, $p < .001$. No difference was detected for accidental harm, $U(188) = 4992.5$, $Z = 1.60$, $p = .11$.

Finally, sadists found that the perpetrator should be less severely punished than did non-sadists for attempted harm scenarios, $U(188) = 3618.5$, $Z = -2.17$, $p < .05$, and for intentional harm scenarios, $U(188) = 2775$, $Z = -5.20$, $p < .001$. Just as for judgments of wrongness, sadists found that the perpetrator should be more severely punished for accidental harm scenarios than did non-sadists, $U(188) = 5815.5$, $Z = 3.98$, $p < .001$.

Study 1 and its replication successfully evidenced that a sadistic personality trait, along with the other socially aversive traits, is associated with a relative failure to integrate a key analytical component of morality (i.e. intentional information). According to Cushman's (2008) two-process model of moral judgment, causality is another independent analytical component of a normal moral evaluation. The first study pointed out poorer theory of mind utilization among those who had high subclinical sadism scores; perhaps defective moral judgment extends to integration of the causal mechanism leading to harmful outcomes.

3. Study 2: Sadism and minimization of causality

The two-process model of moral judgment suggests that an analysis of causal responsibility triggered by a harmful outcome has the potential for impeding the reliance on mental state-based analysis. As a result, a malevolent agent who initially attempted

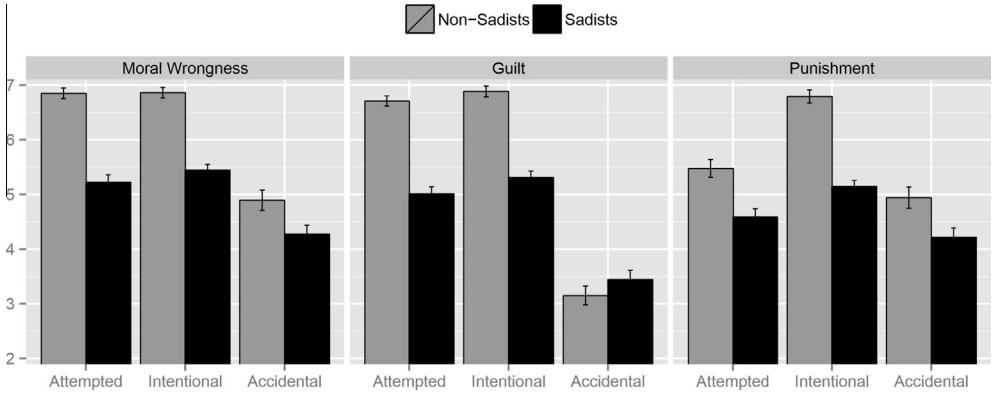

Fig. 1. Judgments of moral wrongness, guilt, and punishment, for sadists and non-sadists (Study 1).

Table 2
Associations of sadism and SD3 with moral judgments (replication).

	Wrongness r (β)	Guilt r (β)	Punishment r (β)
Intentional harm			
Narc	−.12 (.01)	−.10 (.02)	−.10 (.01)
Mach	−.18** (.06)	−.15* (.10)	−.11 (.15*)
Psych	−.36*** (−.08)	−.34*** (−.09)	−.32*** (−.08)
Sadism	−.44*** (−.38***)	−.43*** (−.37***)	−.42*** (−.39***)
Gender	.25***	.26***	.24**
Mean	6.50	6.33	6.38
SD	1.02	1.33	1.09
Attempted harm			
Narc	−.10 (−.003)	−.14* (−.03)	.0 (.05)
Mach	−.13* (.04)	−.24** (−.05)	−.16* (−.14)
Psych	−.26*** (−.04)	−.35*** (−.03)	−.12 (.03)
Sadism	−.32*** (−.27**)	−.41*** (−.33***)	−.13* (−.09)
Gender	.21***	.21**	.07
Mean	6.21	6.0	5.17
SD	1.36	1.44	1.75
Accidental harm			
Narc	.16* (.05)	−.03 (−.10)	.13* (.01)
Mach	.30*** (.19*)	.19** (.19*)	.27*** (.15)
Psych	.30*** (−04)	.13* (.02)	.29*** (.08)
Sadism	.27*** (.12)	.11 (.03)	.25*** (.10)
Gender	−.19	−.08	−.20**
Mean	2.77	4.11	2.61
SD	2.04	1.88	1.93

Note: Narc = Narcissism; Mach = Machiavellianism; Psych = Psychopathy. Intercorrelations of aversive traits: narcissism-Machiavellianism, $r(257) = .24$, $p < .001$; narcissism-psychopathy, $r(257) = .36$, $p < .001$; narcissism-sadism, $r(256) = .21$, $p = .001$. Machiavellianism-psychopathy, $r(257) = .60$, $p < .001$; Machiavellianism-sadism, $r(256) = .43$, $p < .001$; psychopathy-sadism, $r(256) = .72$, $p < .001$. All tolerance values > .32, all VIFs < 3.15, average VIFs = 2.02.

* $p < .05$.
** $p < .01$.
*** $p < 001$.

to harm a person will be more exonerated from punishment if the harm is the result of a coincidental mechanism than if it does not happen. This phenomenon is referred to as the blame-blocking hypothesis (Cushman, 2008; Cushman, Sheketoff, Wharton, & Carey, 2013), suggesting that the presence of a negative consequence drives people focus on the source of the harmful outcome at the expense of the analysis of intention. This antagonism was corroborated by functional neuroimaging studies which highlighted a cognitive conflict between intention analysis and causal analysis for accidental harm scenarios (Young, Cushman, Hauser, & Saxe, 2007). In contrast, it could be inferred that such a conflict would not be operant in context of an abnormal moral judgment: If a harmful outcome does not evoke emotional distress in people with emotional deficit tendencies, such a causal analysis is not warranted. This reasoning is consistent with the findings of Young et al. (2012), highlighting that psychopathic individuals judged accidental harms more leniently than normal control individuals (see also Patil and Silani (2014), for similar results in alexithymic populations).

The present study investigates the question of whether sadism could be an unfavourable condition of causal analysis in moral judgment. Because judgments of moral wrongness are predicted only by intentional properties (Cushman, 2008), we shall instead focus exclusively on judgments of guilt and punishment. Hence, we shall test whether the causal process of harmful consequences influences the judgments of guilt and punishment in individuals with a sadistic personality trait. To this end, we shall use two scenarios: one involving a harmful consequence for which the agent is causally responsible and one involving the same consequence for which the agent is not causally responsible, intention being kept constant. People normally allocate blame and punishment when the agent is causally responsible whereas the agent is exculpated if he/she is not causally implicated despite a deliberative harmful intent (Cushman, 2008). Because all the Dark Tetrad components have a common core of callousness, the harmful outcomes would not evoke an emotional response; this in turn would thwart the causal analysis, just as it was observed in the Young et al.'s (2012) study. That is, the magnitude of the negative association should be greater in causal scenarios than in non-causal scenarios. Because we suspect that callousness is not the only effective component explaining lack of engagement in causal analysis, and that enjoyment of cruelty may have something to do with causal-based analysis impairment, we predict that of the Dark Tetrad, sadism would be a unique predictor: The higher an individual's sadism score, the more willing he/she will be to neglect the causal analysis of the harmful event, resulting in a lower attribution of guilt feelings and less severe punishment.

3.1. Method

3.1.1. Participants

The 291 participants (151 women, mean age = 38.4, *SD* = 12.9) were recruited on Crowdflower platform to complete an online survey.

3.2. Material and measures

The material was the same as in the Study 1 and the replication study except for the scenarios. The two new scenarios were partly adapted from that of Cushman (2008) and were included in a

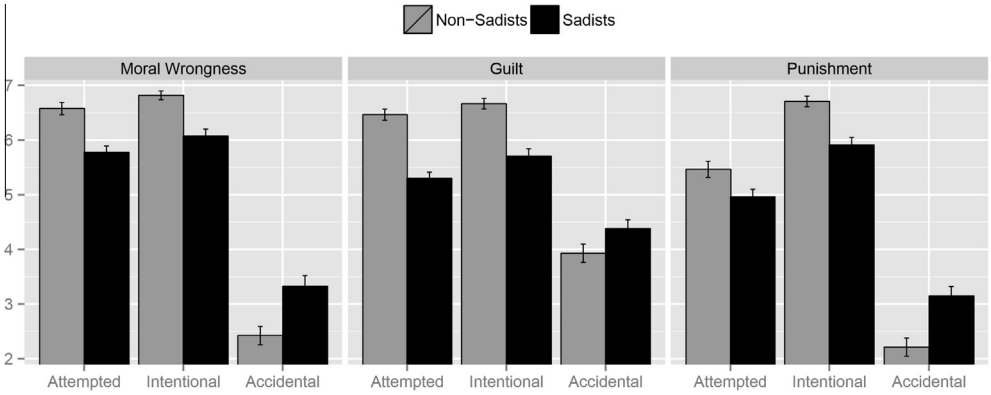

Fig. 2. Judgments of moral wrongness, guilt, and punishment, for sadists and non-sadists (replication of Study 1).

between-subject design. One version featured a situation in which a protagonist aims to hurt someone and directly succeeds (causal version). A second version featured a scenario in which the protagonist intended but failed to hurt the victim directly, but in which the latter hurts him/herself via a coincidental causal effect (non-causal version). The scenarios are available as Supplementary Material.

3.3. Results and discussion

Table 3 displays Pearson's correlations for causal and non-causal scenarios. As it is clearly displayed, the Dark Tetrad traits were more negatively linked to moral judgments in causal scenarios than in non-causal scenarios. This finding confirm that causality is a property which is overlooked by people displaying socially aversive personality traits. Consistently with our predictions, sadism was found to be the unique predictor of guilt and punishment in causal scenario.

As displayed in Fig. 3, judgments of guilt and punishment are associated with different patterns function of causality and level of sadism. Exploring such differences between causal harm and non-causal harm, we found that non-sadists showed different judgments depending on causality. This was true for judgments of guilt, $U(117) = 1992$, $Z = 2.25$, $p = .02$, and punishment, $U(117) = 2276$, $Z = 3.86$, $p < .001$. Of particular importance in regard to the current purpose, sadists showed no difference for judgments of guilt, $U(118) = 1864$, $Z = 0.70$, $p = .48$, nor for judgments of punishment, $U(118) = 2046$, $Z = 1.73$, $p = .08$, suggesting that the causal process of harmful consequences does not actually influence judgments of guilt and punishment in sadists.

These findings highlight the decisive importance of causality in judgments of guilt and punishment in normal individuals. People with low sadism scores assigned less guilt and much less severe punishment to a non-causally responsible agent even if that person intended harming someone, resulting in the absence of correlation between sadism and deserved punishment for non-causal harm. The results for non-sadists are consistent with the results obtained in Study 1 and its replication insofar as non-sadists were less willing to assign punishment following attempted harm than intentional harm. They also corroborate the rationale of the two-process model that causal responsibility is diverted when the character is not the direct instigator of the negative outcome, even if he/she intended to achieve this outcome.

Critically, sadists were much less affected by the causal mechanism of harmful consequence than were non-sadists: causality did no longer shape their judgment of guilt and punishment. This strongly suggests that the blame-blocking hypothesis is ineffective in sadists. Study 1 and its replication revealed that a low sadism score indicated, in contrast, a greater willingness to assign punishment in both failed attempted harm and intentional harm. The mitigation of harmful intent in the absence of causal responsibility dovetails with the fact that the causal and intentional parameters act as two competitive components of moral analysis, just as predicted by the two-process model of moral judgment. While non-sadists analyse the causal responsibility of the harmful consequence, which seemingly causes them to minimize the harmful intent of the non-causally responsible agent, sadists do not perform such an analysis.

Table 3
Associations of sadism and SD3 with moral judgments to causal and non-causal scenarios (Study 2).

	Causal scenario		Non-causal scenario	
	Guilt r (β)	Punishment r (β)	Guilt r (β)	Punishment r (β)
Narc	−.21* (−.06)	−.21* (−.03)	−.05 (.05)	.07 (.12)
Mach	−.09 (.08)	−.15* (.05)	−.05 (.14)	.03 (.07)
Psych	−.29*** (.05)	−.37*** (.05)	−.26** (−.13)	−.07 (−.09)
Sadism	−.42*** (−.42***)	−.53*** (−.55***)	−.31*** (−.23)	−.08 (−.04)
Gender	.25**	.22**	.25**	.12
Mean	6.40	6.53	6.19	5.80
SD	1.25	0.95	1.21	1.60

Note: Narc = Narcissism; Mach = Machiavellianism; Psych = Psychopathy. Intercorrelations of aversive traits: narcissism-Machiavellianism, $r(287) = .35$, $p < .001$; narcissism-psychopathy, $r(286) = .47$, $p < .001$; narcissism-sadism, $r(286) = .31$, $p < .001$. Machiavellianism-psychopathy, $r(286) = .56$, $p < .001$; Machiavellianism-sadism, $r(286) = .39$, $p < .001$; psychopathy-sadism, $r(286) = .73$, $p < .001$. All tolerance values > .35, all VIFs < 2.84, average VIFs = 1.92.

* $p < .05$.
** $p < .01$.
*** $p < 001$.

Studies 1 and 2 successfully evidenced that the sadistic trait of personality predicted impaired evaluation of intention and causality, even when controlling for emotional callousness. As pointed out in the introduction section, one particular feature to sadism—that is not observed in the other Dark traits—is the disposition for enjoyment of cruelty; the fact that such individuals derive pleasure from inflicting or seeing suffering. Study 3 tests the possibility that such a characteristic partly explains minimization of the importance of properties critical for moral judgment.

4. Study 3: Assessing the role of enjoyment of cruelty in sadists' moral judgments

Why would subclinical sadism be associated with a lack of integration of both theory of mind and causal analysis components in

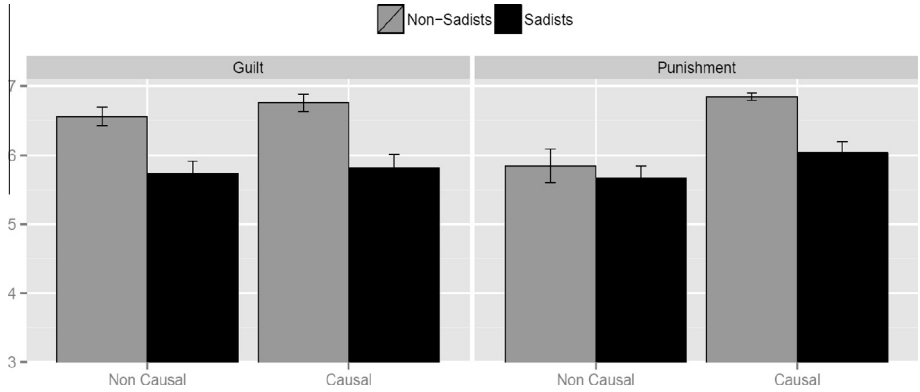

Fig. 3. Judgments of guilt, and punishment, for sadists and non-sadists (study 2).

moral judgment? It was suggested throughout this paper that, beyond emotional callousness, a singular routine of cognitive processing peculiar to the sadistic trait could preclude one from making normal moral evaluation. In the scenarios, the presence of harm, pain, suffering, victimhood, and dominance might evoke a vicarious source of pleasurable and rewarding experience. The reward-evoking effect of a victim-perpetrator state of affairs is well supported by various neuroscientific evidences. For instance, neuroimaging studies highlighted that sadists showed increased activity in the left amygdala—a region involved in sexual arousal and reward—in response to pictures evoking pain caused by another person (Harenski et al., 2012). The authors also found increased amygdala (a region associated with emotions) activity in sadists only, suggesting that these individuals derived also pleasure (a more general positive emotion than sexual arousal) from seeing such pictures. Evidence that sadists derive pleasure even when merely seeing other people suffering were also obtained using penile plethysmography (Seto, Lalumière, Harris, & Chivers, 2009). It was found that sadists had increased penile plethysmography responses viewing stimuli depicting physical injury caused to others, relative to control participants. Importantly, different patterns of neuropsychological functioning were evidenced between sadistic personality disorder and antisocial personality disorder. Sadistic personality disorder was shown to be associated with emotional acting-out, defensive aggression and strong-willed determination (Ruocco & Swirsky-Sacchetti, 2007). These elements have critical implication in context of sadistic moral reasoning because they underscore poor emotional regulation. If positive feelings elicited by the reading of a scenario describing a victim-perpetrator configuration arise automatically among people high in sadistic traits, poor regulation can make it difficult to prevent these feelings from impinging on the moral judgment process. In other words, the fact that sadists derive pleasure from seeing people hurt by another person suggests that they have reduced perception of aversion signals, which are a prerequisite of moral condemnation; hence, enjoyment would hamper the instrumentation of the necessary properties for making correct moral evaluation above and beyond emotional callousness. Interestingly, some data dovetail with this rationale. It was shown, for instance, that specific positive emotion manipulation (e.g., mirth) increased moral utilitarianism (Strohminger, Lewis, & Meyer, 2011). The perspective of sacrificing one so as to save more people generates unpleasant feelings that generally lead to a non-utilitarian response. Positive emotion manipulation, however, can reduce the unpleasant feelings (aversion signal) triggered by the reading of the dilemma, mechanically implying a greater propensity to endorse moral utilitarianism.

If our reasoning is true, we should observe that the relationship between sadistic trait and abnormal moral evaluation is partly explained by the presence of positive cognitions generated by the reading of the moral scenario. To this end, we need to elucidate which cognitions underpin sadists' moral judgments.

4.1. Method

4.1.1. Participants

The 266 participants (154 women, mean age = 37.9, *SD* = 13.5) were recruited on Crowdflower platform to complete an online survey.

4.2. Material and measures

The personality measures and the scenarios were the same as those used in Study 1 (and its replication). The framing of the scenarios was counterbalanced across types of harm, as well as the order of the three scenarios faced by each participant. We display below the two new materials:

4.2.1. Outcome measure

Our dependent variable was adapted from that used in Bartels and Pizarro (2011). In our version, participants were instructed to indicate on a 5-point scale (ranging from −2 "No" to +2 "Yes") whether they found (1) the perpetrator morally wrong, (2) that the perpetrator should feel guilty and (3) the perpetrator would deserve punishment.

4.2.2. Feelings ratings

In order to investigate how much enjoyment of cruelty explains abnormal moral judgments in sadists, we selected five items capturing positive feelings: Joyful; Delighted; Cheerful; Enthusiastic; Excited. Five items capturing negative attitude (Outraged; Downhearted; Disgusted; Sad; Loathing), were also displayed to participants. Finally, these 10 items were mixed together with filler items (Interested; Proud; Alert; Attentive; Active; Scared) from the PANAS (Positive And Negative Affect Schedule; Watson, Clark, & Tellegen, 1988). Participants were instructed to indicate, after giving judgments on each scenario, the extent to which each of these feelings contributed to their judgment, by using a scale ranging from 1 (Not at all) to 5 (Extremely). Scores of each of the positive and the negative measures were then computed to obtain composite measures of positive feelings and negative feelings (all scales showed good internal consistency reliability, all αs > .83).

4.3. Results

Just as in the previous studies, we first performed multiple regression analyses with narcissism, Machiavellianism, psychopathy, and sadism as predictors, and moral judgments on the

different types of scenario as outcome variables. Controlling for gender, the results confirm one more time that sadism was the stronger independent predictor of moral wrongness, guilt, and punishment for intentional and attempted harm scenarios (Table 4). Again, sadism did not independently predict wrongness nor guilt for accidental harm scenarios. It did positively predict punishment on accidental harm scenarios.

As displayed in Fig. 4, sadists (third tertile) were overall less harsh in their judgments than non-sadists (first tertile).

Pairwise comparisons using the Mann–Whitney test showed that, similarly to Study 1 and its replication, sadists rated attempted harm as less morally wrong than did non-sadists, $U(184) = 2616$, $Z = -5.97$, $p < .001$, intentional harm as less morally wrong than did non-sadists, $U(184) = 2929$, $Z = -4.97$, $p < .001$. Just as in the replication study, sadists found accidental harm more morally wrong than non-sadists, $U(182) = 5545.5$, $Z = 4.06$, $p < .001$.

Furthermore, sadists found that the perpetrator should feel less guilty for attempted harm than did non-sadists, $U(184) = 2595$, $Z = -5.5$, $p < .001$, and similarly for intentional harm, $U(183) = 2828.5$, $Z = -5.25$, $p < .001$. No difference was detected for accidental harm, $U(182) = 4378$, $Z = 0.69$, $p = .49$.

Finally, sadists found that the perpetrator should be less severely punished than did non-sadists for attempted harm scenarios, $U(182) = 3296$, $Z = -2.5$, $p = .01$, and for intentional harm scenarios, $U(182) = 2544.5$, $Z = -5.76$, $p < .001$. Just as for judgments of wrongness, sadists found that the perpetrator should be more severely punished for accidental harm scenarios than did non-sadists, $U(183) = 5707$, $Z = 4.46$, $p < .001$.

Regarding our hypothesis that enjoyment of cruelty is likely to explain such abnormal judgments in sadists, we tested the possible mediating role of positive feelings, using the Preacher and Hayes's (2008) non parametric resampling procedure with 1000 bootstrap resamples. After having introduced Machiavellianism, narcissism and psychopathy as covariates, the analysis detected significant mediation effects of positive feelings on the link between sadism and moral judgment (Table 5). Positive feelings negatively (partially) mediated the sadism effect on intentional scenarios and attempted scenarios (but for punishment judgments on attempted scenarios). No such mediations were detected for accidental scenarios, but for moral wrongness for which the analysis detected a significant positive partial mediation of positive feelings (for the sake of comparability, we offer, in Appendix A, the single mediation results for psychopathy, narcissism, and Machiavellianism, in the form of Tables A1–A3, respectively).

Exploring further the respective roles of positive and negative feelings in sadists and non-sadists in the computation of moral judgments, we conducted bivariate correlation analyses in each group (Table 6). The analyses detected the predicted associations on intentional and attempted scenarios: negative feelings were found to be positive correlates of moral condemnation in non-sadists but not in sadists. On the contrary, positive feelings were found to be negative correlates of moral condemnation among sadists, while no such associations were found in non-sadists.

Our results highlight the decisive importance of enjoyment of cruelty in sadists. Positive cognitions that contributed to moral judgments mediated the sadistic effect on these judgments, at least for intentional and attempted harms. Importantly, and consistent with the well-accepted claim that all aversive traits are all characterized by emotional callousness, negative cognitions—necessary for normal moral evaluations—were not associated with moral judgments in sadists, while such associations were observed in non-sadists. Critically, sadists showed an association between positive feelings and moral judgments, which was not observed in non-sadists. It is worth noting that psychopathy and narcissism were also associated with positive cognitions; these cognitions, however, did not mediate the effect of both aversive traits on moral judgment to the same extent as for sadism (see Tables A1 and A2 displayed in Appendix A). Positive cognitions mediated psychopathy[9] on attempted scenarios and for judgments of wrongness on accidental harm scenarios (with the same unexpected direction as for sadism). Positive cognitions, nevertheless, did not mediate the relationship between psychopathy and moral judgments on intentional scenarios, for which both the total effects and the indirect effects were not significant. Neither narcissism nor Machiavellianism were mediated by positive cognitions.

These results highlight that emotional callousness, a hallmark of individuals subscribing aversive personalities, is not the only determinant factor for abnormal judgments. Beyond emotional callousness, positive cognitions triggered by situations describing moral violations appear to strongly shape moral judgments in individuals scoring high in sadism, making them less morally competent.

Table 4
Associations of sadism and SD3 with moral judgments (Study 3).

	Wrongness r (β)	Guilt r (β)	Punishment r (β)
Intentional harm			
Narc	−.09 (.009)	−.12* (−.02)	−.19** (−.09)
Mach	−.06 (.12)	−.04 (.17*)	−.11 (.11)
Psych	−.25*** (−.15)	−.27*** (−.16)	−.30*** (−.08)
Sadism	−.28*** (−.23**)	−.31*** (−.27**)	−.37*** (−.33***)
Gender	−.17**	−.24***	−.30***
Mean	1.73	1.67	1.52
SD	0.74	0.82	1.02
Attempted harm			
Narc	−.16** (−.03)	−.17** (−.04)	.02 (.04)
Mach	−.04 (.23***)	−.09 (.14*)	−.02 (.08)
Psych	−.36*** (−.23**)	−.33*** (−.18*)	−.06 (.01)
Sadism	−.39*** (−.32***)	−.36*** (−.27**)	−.13* (−.19*)
Gender	−.24***	−.26***	−.05
Mean	1.68	1.48	0.94
SD	0.63	0.88	1.16
Accidental harm			
Narc	.20** (.07)	.07 (.07)	.21** (.10)
Mach	.12* (−.09)	.05 (.04)	.12 (−.09)
Psych	.35*** (.26**)	.03 (.02)	.31*** (.14)
Sadism	.31*** (.15)	.001 (−.05)	.33*** (.24**)
Gender	.25***	.13*	.31***
Mean	−1.10	0.003	−1.04
SD	1.29	1.42	1.29

Note: Narc = Narcissism; Mach = Machiavellianism; Psych = Psychopathy. Intercorrelations of aversive traits: narcissism-Machiavellianism, $r(263) = .27$, $p < .001$; narcissism-psychopathy, $r(263) = .43$, $p < .001$; narcissism-sadism, $r(263) = .29$, $p < .001$. Machiavellianism-psychopathy, $r(263) = .50$, $p < .001$; Machiavellianism-sadism, $r(263) = .46$, $p < .001$; psychopathy-sadism, $r(263) = .72$, $p < .001$. All tolerance values > .37, all VIFs < 2.73, average VIFs = 1.88.

* $p < .05$.
** $p < .01$.
*** $p < 001$.

5. General discussion

The study of individual differences has recently gained traction in the field of moral judgment. Recent research have begun

[9] For the sake of giving a clearer picture of the respective contributions of sadism and psychopathy (as they are strongly related to each other), we ran commonality analyses, aimed at decomposing the multivariate regression effects of sadism and psychopathy into non-overlapping partitions. Results showed that the unique explanatory power of sadism outperforms that of psychopathy in the intentional and attempted harm scenarios (see Table A4). Exploring the overlap between sadism and psychopathy further, the analysis showed that sadism and psychopathy shared between 60% and 70% of the variance.

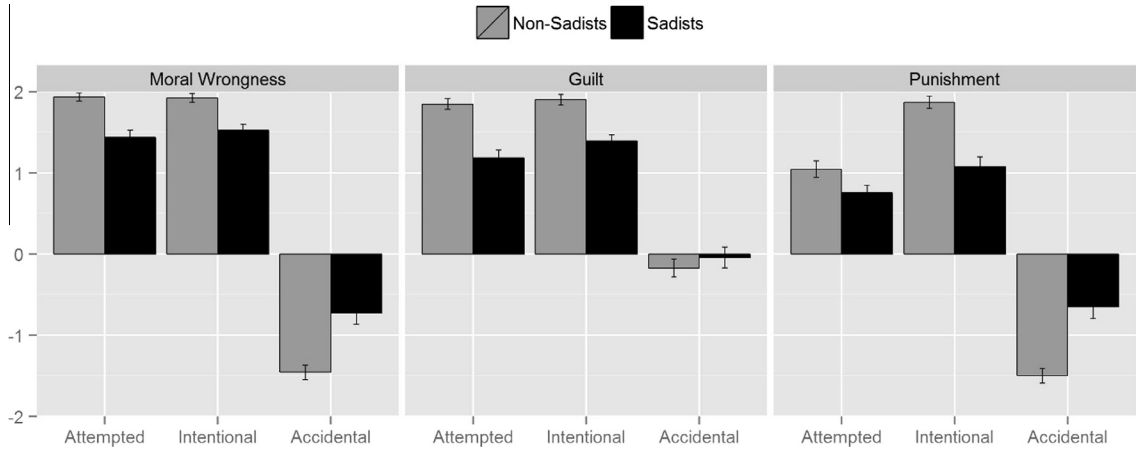

Fig. 4. Judgments of moral wrongness, guilt, and punishment, for sadists and non-sadists (study 3).

Table 5
Results of the simple mediation analyses of positive feelings in the relationship between sadism and moral judgment (Study 3).

	IV to mediator (a path)	Mediator to DV (b path)	Total effect (c path)	Direct effect (c' path)	BCa[a] 95%CI
Intentional					
Wrongness	$\beta = .32$, $p = .003$	$\beta = -.09$, $p = .043$	$\beta = -.20$, $p = .009$	$\beta = -.17$, $p = .028$	−.0299, 95%CI [−.0843, −.0045]
Guilt	$\beta = .32$, $p = .003$	$\beta = -.13$, $p = .012$	$\beta = -.27$, $p = .002$	$\beta = -.23$, $p = .01$	−.0420, 95%CI [−.1067, −.0111]
Punishment	$\beta = .32$, $p = .003$	$\beta = -.19$, $p = .003$	$\beta = -.43$, $p < .001$	$\beta = -.37$, $p < .001$	−.0611, 95%CI [−.1489, −.0175]
Attempted					
Wrongness	$\beta = .23$, $p = .037$	$\beta = -.14$, $p < .001$	$\beta = -.25$, $p < .001$	$\beta = -.22$, $p < .001$	−.0312, 95%CI [−.0772, −.0019]
Guilt	$\beta = .23$, $p = .037$	$\beta = -.19$, $p < .001$	$\beta = -.30$, $p = .001$	$\beta = -.26$, $p = .006$	−.0437, 95%CI [−.1187, −.0069]
Punishment	$\beta = .24$, $p = .026$	$\beta = -.09$, $p = .27$	$\beta = -.28$, $p = .038$	$\beta = -.26$, $p = .057$	−.0205, 95%CI [−.0984, .0068]
Accidental					
Wrongness	$\beta = .23$, $p = .031$	$\beta = .23$, $p = .004$	$\beta = .24$, $p = .09$	$\beta = .18$, $p = .18$	.0528, 95%CI [.0038, .1517]
Guilt	$\beta = .24$, $p = .026$	$\beta = .06$, $p = .55$	$\beta = -.09$, $p = .56$	$\beta = -.11$, $p = .51$	.0133, 95%CI [−.0304, .0875]
Punishment	$\beta = .23$, $p = .03$	$\beta = .21$, $p = .009$	$\beta = .38$, $p = .005$	$\beta = .33$, $p = .015$	.0477, 95%CI [.0036, .1427]

[a] BCa = bias corrected and accelerated bootstrapping confidence intervals. Confidence intervals containing zero are interpreted as not significant.

exploring how emotional deficits or aversive traits (e.g. the Dark Triad) shape moral appreciations (see Bartels & Pizarro, 2011; Djeriouat & Trémolière, 2014; Patil & Silani, 2014). The present set of studies explored a specific callous-unemotional trait, i.e. sadism, and its interaction with moral judgment. We focused on subclinical sadism and explored how it modulates the consideration of intention and causal responsibility, two essential albeit competitive features of moral judgment. The first study and its replication revealed that subclinical sadism predicted minimization of intention as a contributing factor of moral evaluation, providing initial evidence of the defective moral functioning associated with sadistic personality tendencies. The second study emphasized that subclinical sadism predicted a neglectful attitude toward the causal accountability underlying moral events. The third study highlighted that, while moral judgments were qualified by negative cognitions in non-sadists, the opposite was true in sadists, for whom moral judgments were qualified by positive cognitions. In those people, such positive cognitions triggered by moral violations constitute an additional cause of abnormal moral evaluations.

People who self-reported minimal sadism judged the perpetrator as highly morally blameful and assigned higher levels of guilt and punishment to the agent in the event of failed attempted harm. Conversely, they allocated much less guilt and punishment in the presence of harmful consequences to a non-causally responsible agent who initially attempted to harm someone. This pattern of moral analysis fits well with the two-process analysis of moral judgment in which intentional analysis and causal analysis are competitively mobilized (Cushman, 2008). Interestingly, the role of emotion might supply a relevant assumption as to why people with no emotionally aversive proclivity relied concurrently on intention and causality depending on circumstances. In situations where an agent attempts to harm but fails to concretize his/her beliefs and desires, the only cue that springs to mind is negative intention. The agent's negative intention possibly triggers an emotional aversive response which would easily generate judgments of moral wrongness and guilt, but which would be insufficient to attribute punishment. In contrast, in situations where an agent attempts to harm someone but where the harm derives from a coincidental causal mechanism independent of the agent's intention, people might undergo emotional distress induced by empathic concern for the victim. The victim's suffering might trigger a retributive impulse leading people to engage more heavily in

Table 6
Associations (Pearson's correlations) of positive and negative feelings with moral judgments in sadists and non-sadists (Study 3).

	Positive feelings		Negative feelings	
	Non sadists *r*	Sadists *r*	Non sadists *r*	Sadists *r*
Intentional				
Moral wrongness	−.02	−.24*	.24*	.04
Guilt	−.05	−.28**	.26*	.04
Punishment	−.04	−.37***	.28**	−.08
Attempted				
Moral wrongness	−.08	−.38***	.07	−.13
Guilt	−.17	−.41***	.19†	−.09
Punishment	.10	−.09	.30**	.14
Accidental				
Moral wrongness	.22*	.29**	.58***	.60***
Guilt	.08	−.07	.33**	.27**
Punishment	.14	.33**	.55***	.62***

† $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < 001$.

causal analysis designed to understand the situation or help foil the real perpetrator. This investment might explain why the deserved punishment and guilt of the non-causally responsible character is judged more leniently despite his/her malevolent attempt to harm.

A quite different judgment mechanism might arise among people who self-reported a marked sadistic trait, which can be accounted for by the same line of analysis. In the attempted harm scenario, a possibility would be that the agent's negative intention does not trigger sufficient negative emotional response among sadists. Critically, the opposite seems true: negative intention seemed to evoke positive feelings in sadists. In this perspective, there would be no reason to expect sadists to severely condemn the initiator of enjoyable, pleasurable feelings. In the non-causal attempted harm scenario, the lack of empathic concern for the victim's suffering or death would not trigger the need to perform causal analysis, which explains why the manipulation of causality did not reveal any difference in deserved punishment and guilt, in contrast to non-sadists.

Interestingly, the previous studies exploring how people with emotional deficits dealt with moral issues systematically found selective effects: vmPFC participants' judgments differed from control participants on attempted harm scenarios only (Young et al. (2010) while psychopaths or participants suffering alexithymia differed from controls on accidental harm scenarios only Patil & Silani, 2014; Young et al., 2012). The sadistic trait has no comparable effect. Our results, indeed, suggest that sadism distorts all the aspects of moral judgment, from the integration of malevolent intents to the appreciation of the emotional aspect of victim's harmful experience.

Note that, although our studies highlighted how sadists minimized intention and causal responsibility when computing moral judgments, we found a surprising effect regarding how sadists dealt with accidental harms. In the replication study as well as in Study 3, sadists tended to be less forgiving than non-sadists on these scenarios exclusively. This is an unexpected result, which is not supported by any evidence in the literature. To our knowledge, the few studies that explored the permissibility of accidental harm in callous personalities showed that such individuals judged accidental harms more leniently than normal control participants (Patil & Silani, 2014; Young et al., 2012). Because we have no reliable cue allowing relevant explanation, we will refrain from speculating too much on that surprising result.

Overall, the differences between patterns of judgment of non-sadists and sadists illustrate the extent to which emotion can be thought of as the essence of morality (Haidt, 2001), even though causal analysis implies sometimes costly cognitive processing. The relevance of emotion in such judgments has been evidenced in countless papers in the field of moral judgment (e.g. Berthoz, Armony, Blair, & Dolan, 2002; Greene et al., 2001; Moll, de Oliveira-Souza, & Eslinger, 2003) and the exploration of emotion regulation and disorders often refers to the Theory of Mind framework—the capacity to make inferences about the mental state of other people (Premack & Woodruff, 1978)—to explain non-typical behavior.

5.1. Beyond emotional callousness as a source of moral impairment

It is worth investigating whether a lack of emotion-triggering response in highly sadistic individuals to a failed attempted to harm as well as the absence of causal analysis after a harmful consequence is explained only by a lack of empathy. Our results show this is not the case. The main advantage of introducing a measurement of sadistic personality traits in association with the Dark Triad is to reveal potential sources of influence that would go above and beyond the associated features of the Dark Triad. Our data provide first evidence for some exclusive underlying correlates of subclinical sadism that might explain a defective moral judgment beyond emotional callousness related to the Dark Triad (see also Jones & Figueredo, 2013; Jones & Paulhus, 2014). As a distinctive feature that is of interest in deciphering the observed pattern of judgments, we explored the vicarious enjoyment of cruelty or premeditation of cruelty in the case of attempted harm. Relying on such a theoretical reasoning, these findings provide first evidence that lacking emotional empathy does not constitute the only unfavourable condition for a normal moral evaluation; the incentive to seek self-enjoyment from vicarious cruelty is also an important factor responsible for incorrect moral evaluations. It would be possible that in the case of non-lethal harm, pleasure may stem from the victim's suffering, whereas in the case of lethal harm, enjoyment may stem from a perpetrator-victim dialectic. Consistent with this rationale, it was found that, for subclinical sadism, the experience is all the more thrilling if the person who bears the consequences of violence is an innocent victim or a dominated person (see Buckels, 2012). Additionally, in our studies, sadism was found to independently predict the fact that failed attempts to harm were more morally permissible, suggesting that premeditation of cruelty mentally activates an arousal-evoking perpetrator-victim configuration on its own.

Our results provide new evidence that inadequate emotions shape moral judgments in the wrong direction. Interestingly, previous research showed that experimentally induced positive emotions led to greater propensity for utilitarianism (Strohminger et al., 2011) although that class of moral dilemmas does not make it possible to distinguish between correct and incorrect judgments (see Bartels & Pizarro, 2011). The class of scenarios used in the present research, by contrast, leaves no doubts as to the normative standard of moral evaluation, and our data clearly showed that the occurrence of incorrect (positive) feelings in contexts of explicit moral violations leads to abnormal patterns of moral judgment. Finally, our findings highlight that sadism constitutes a dispositional attribute of moral irreverence in and of itself: its characteristics are different from the other dark triad traits which are mainly characterized by moral apathy, and its effects occur independently from any exogenous emotion manipulation. One should note, however, that sadism was not the only trait to evoke positive cognitions after reading moral scenarios: it was also the case for psychopathy and narcissism. Nevertheless, the mediating role of positive feelings was much more robust for

sadism, with no such comparable strength in the case of psychopathy and narcissism. That is, positive feelings are more likely to jeopardize moral evaluation in people with marked trait of sadism.

These results have important implications in the forensic realm. Jurors with sadistic tendencies may vicariously derive pleasure from seeing a lawyer giving a rape victim a hard time in the court room, raising the question of the reinforcement of victim blaming in the legal system. Although it does not fall into the domain of sadism, as it constitutes an ephemeral experience rather than a stable trait, *schadenfreude* can sometimes lead non-sadists to make corrupted moral judgments. For instance, *schadenfreude* can prevent people from experiencing moral concerns for a snobbish rich celebrity who is unfairly accused. Likewise, *schadenfreude* can also be associated with transient satisfaction after hearing that an incarcerated paedophile has been raped, whereas sadists would enjoy this even when the victim is innocent. All in all, there are probably many other features beyond emotional callousness that could lie at the root of poor integration of both intention and causation in moral judgment. Future research should find new correlates of this impaired moral evaluation.

5.2. Why is it important to study the sadistic trait in relation to moral judgment?

We believe that it is important to study the sadistic personality trait, particularly because of its limited function: sadism is doubtless the only aversive trait that has no social utility in terms of goal achievements. In contrast, all the aversive traits of personality included in the Dark Triad are largely context dependent and channelled into a purpose. Psychopaths exploit others to reach their end (Woodworth & Porter, 2002), narcissists struggle to preserve their ego in the social sphere (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004), while Machiavellian individuals calculate malevolent acts to maximize benefits (Jones & Paulhus, 2010). Sadism provides none of these functions. It instead reflects an intrinsic appetitive motivation (absent in the other aversive traits) to see/make others suffer, constituting a desired reward even when implying personal cost (see Buckels et al., 2013).

As pointed out above, the implications of such results are potentially critical, insofar as these phenomena are observable at the subclinical level; and that sadistic tendencies could possibly shape judgments in a variety of high-stake situations such as judicial ones (e.g. ruling on a judicial sentence), among others. We are quite confident that future research will take a serious look at these important issues.

6. Conclusion

Hitherto, the study of individual differences has largely focused on the exploration of emotional callousness. In and of itself, the sadistic personality trait deserves great attention, insofar as (a) it has no social adaptive utility and (b) the resulting effects on moral judgments extend far beyond those of the classic aversive traits of personality (e.g. the Dark Triad). Moral situations are undoubtedly golden opportunities to study the sadistic trait of personality, because they regularly involve situations in which individuals risk mental or physical injuries, bringing the potential for satisfying this intrinsic motivation. We believe these findings call for further research to extend these initial results and explore this specific aversive trait in other situations concerned with emotion-based judgments.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Acknowledgement

The authors thank the anonymous reviewers for their valuable comments and suggestions that helped to improve the quality of this article. The author(s) received no financial support for the research, authorship, and/or publication of this article.

Appendix A

See Tables A1–A4.

Table A1
Results of the simple mediation analyses of positive feelings in the relationship between psychopathy and moral judgment (Study 3).

	IV to mediator (a path)	Mediator to DV (b path)	Total effect (c path)	Direct effect (c' path)	BCa[a] 95%CI
Intentional					
Wrongness	$\beta = .30$, $p = .012$	$\beta = -.09$, $p = .043$	$\beta = -.14$, $p = .12$	$\beta = -.11$, $p = .21$	−.0286, 95%CI [−.0903, .0008]
Guilt	$\beta = .30$, $p = .012$	$\beta = -.13$, $p = .012$	$\beta = -.17$, $p = .10$	$\beta = -.13$, $p = .20$	−.0401, 95%CI [−.1061, −.0017]
Punishment	$\beta = .30$, $p = .012$	$\beta = -.19$, $p = .003$	$\beta = -.12$, $p = .36$	$\beta = -.06$, $p = .65$	−.0583, 95%CI [−.1523, −.0029]
Attempted					
Wrongness	$\beta = .27$, $p = .028$	$\beta = -.14$, $p < .001$	$\beta = -.19$, $p = .008$	$\beta = -.16$, $p = .03$	−.0377, 95%CI [−.0931, −.0021]
Guilt	$\beta = .27$, $p = .028$	$\beta = -.19$, $p < .001$	$\beta = -.21$, $p = .049$	$\beta = -.16$, $p = .13$	−.0528, 95%CI [−.1406, −.0042]
Punishment	$\beta = .27$, $p = .028$	$\beta = -.09$, $p = .27$	$\beta = .02$, $p = .89$	$\beta = .05$, $p = .77$	−.0232, 95%CI [−.1033, .0088]
Accidental					
Wrongness	$\beta = .27$, $p = .028$	$\beta = .23$, $p = .004$	$\beta = .44$, $p = .006$	$\beta = .38$, $p = .017$	.0614, 95%CI [.0045, .1793]
Guilt	$\beta = .27$, $p = .028$	$\beta = .06$, $p = .55$	$\beta = .04$, $p = .84$	$\beta = .02$, $p = .91$	.0150, 95%CI [−.0308, .1128]
Punishment	$\beta = .27$, $p = .027$	$\beta = .21$, $p = .009$	$\beta = .23$, $p = .14$	$\beta = .18$, $p = .26$	.0562, 95%CI [.0040, .1844]

[a] BCa = bias corrected and accelerated bootstrapping confidence intervals. Confidence intervals containing zero are interpreted as not significant.

Table A2
Results of the simple mediation analyses of positive feelings in the relationship between narcissism and moral judgment (Study 3).

	IV to mediator (a path)	Mediator to DV (b path)	Total effect (c path)	Direct effect (c' path)	BCa[a] 95%CI
Intentional					
Wrongness	$\beta = .31$, $p = .004$	$\beta = -.09$, $p = .043$	$\beta = .01$, $p = .89$	$\beta = .04$, $p = .62$	−.0290, 95%CI [−.0757, −.0041]
Guilt	$\beta = .31$, $p = .004$	$\beta = -.13$, $p = .012$	$\beta = -.03$, $p = .75$	$\beta = -.01$, $p = .90$	−.0407, 95%CI [−.0883, −.0108]
Punishment	$\beta = .31$, $p = .004$	$\beta = -.19$, $p = .003$	$\beta = -.15$, $p = .17$	$\beta = -.09$, $p = .41$	−.0592, 95%CI [−.1276, −.0155]
Attempted					
Wrongness	$\beta = .33$, $p = .003$	$\beta = -.14$, $p < .001$	$\beta = -.03$, $p = .60$	$\beta = .01$, $p = .86$	−.0458, 95%CI [−.0980, −.0154]
Guilt	$\beta = .33$, $p = .003$	$\beta = -.19$, $p < .001$	$\beta = -.07$, $p = .45$	$\beta = -.01$, $p = .94$	−.0643, 95%CI [−.1535, −.0218]
Punishment	$\beta = .33$, $p = .003$	$\beta = -.09$, $p = .27$	$\beta = .08$, $p = .53$	$\beta = .11$, $p = .41$	−.0284, 95%CI [−.0976, .0122]
Accidental					
Wrongness	$\beta = .31$, $p = .004$	$\beta = .23$, $p = .004$	$\beta = .15$, $p = .27$	$\beta = .08$, $p = .56$	.0715, 95%CI [.0133, .1623]
Guilt	$\beta = .31$, $p = .004$	$\beta = .06$, $p = .55$	$\beta = .16$, $p = .31$	$\beta = .15$, $p = .38$	.0174, 95%CI [−.0470, .1008]
Punishment	$\beta = .31$, $p = .005$	$\beta = .21$, $p = .009$	$\beta = .21$, $p = .13$	$\beta = .14$, $p = .29$	.0639, 95%CI [.0128, .1673]

[a] BCa = bias corrected and accelerated bootstrapping confidence intervals. Confidence intervals containing zero are interpreted as not significant.

Table A3
Results of the simple mediation analyses of positive feelings in the relationship between Machiavellianism and moral judgment (Study 3).

	IV to mediator (a path)	Mediator to DV (b path)	Total effect (c path)	Direct effect (c' path)	BCa[a] 95%CI
Intentional					
Wrongness	$\beta = -.04$, $p = .71$	$\beta = -.09$, $p = .043$	$\beta = .13$, $p = .10$	$\beta = .12$, $p = .10$	.0035, 95%CI [−.0175, .0325]
Guilt	$\beta = -.04$, $p = .71$	$\beta = -.13$, $p = .012$	$\beta = .21$, $p = .016$	$\beta = .20$, $p = .018$	−.0050, 95%CI [−.0270, .0391]
Punishment	$\beta = -.04$, $p = .71$	$\beta = -.19$, $p = .003$	$\beta = .18$, $p = .10$	$\beta = .17$, $p = .10$	.0072, 95%CI [−.0390, .0508]
Attempted					
Wrongness	$\beta = .02$, $p = .84$	$\beta = -.14$, $p < .001$	$\beta = .22$, $p < .001$	$\beta = .22$, $p < .001$	−.0030, 95%CI [−.0406, −.0255]
Guilt	$\beta = .02$, $p = .84$	$\beta = -.19$, $p < .001$	$\beta = .18$, $p = .044$	$\beta = .19$, $p = .035$	−.0041, 95%CI [−.0591, .0354]
Punishment	$\beta = .01$, $p = .92$	$\beta = -.09$, $p = .27$	$\beta = .15$, $p = .25$	$\beta = .15$, $p = .25$	−.0009, 95%CI [−.0456, .0209]
Accidental					
Wrongness	$\beta = .04$, $p = .69$	$\beta = .23$, $p = .004$	$\beta = -.18$, $p = .17$	$\beta = -.19$, $p = .15$	.0093, 95%CI [−.0315, .0724]
Guilt	$\beta = .03$, $p = .76$	$\beta = .06$, $p = .55$	$\beta = .09$, $p = .56$	$\beta = .09$, $p = .57$	.0018, 95%CI [−.0144, .0572]
Punishment	$\beta = .03$, $p = .74$	$\beta = .21$, $p = .009$	$\beta = -.18$, $p = .19$	$\beta = -.18$, $p = .16$	.0070, 95%CI [−.0401, .0632]

[a] BCa = bias corrected and accelerated bootstrapping confidence intervals. Confidence intervals containing zero are interpreted as not significant.

Table A4
Commonality analysis between sadism and psychopathy (Study 3). Negative coefficients reflect the presence of suppressor effects.

	Variance unique to sadism Coeff (% total)	Variance unique to psychopathy Coeff (% total)	Variance common to sadism and psychopathy Coeff (% total)
Intentional			
Wrongness	0.0204 (24.50)	0.0049 (5.84)	0.0581 (69.66)
Guilt	0.0255 (25.93)	0.0050 (5.09)	0.0680 (68.98)
Punishment	0.0445 (32.60)	0.0032 (2.36)	0.0887 (65.04)
Attempted			
Wrongness	0.0352 (21.34)	0.0127 (7.68)	0.1169 (70.98)
Guilt	0.0283 (20.68)	0.0111 (8.11)	0.0975 (71.20)
Punishment	0.0145 (79.87)	0.0021 (11.35)	0.0016 (8.78)
Accidental			
Wrongness	0.0075 (5.87)	0.0309 (24.36)	0.0886 (69.77)
Guilt	0.0011 (49.41)	0.0022 (99.91)	−0.0011 (−49.33)
Punishment	0.0227 (19.29)	0.0108 (9.14)	0.0842 (71.57)

Appendix B. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.cognition.2015.09.014.

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