Article

Sadism and Aggressive Behavior: Inflicting Pain to Feel Pleasure

Personality and Social Psychology Bulletin
2019, Vol. 45(8) 1252–1268

DOI: 10.1177/0146167218816327
journals.sagepub.com/home/pspb
SAGE

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Abstract

Sadism is a "dark" trait that involves the experience of pleasure from others' pain, yet much is unknown about its link to aggression. Across eight studies (total $N = 2{,}255$), sadism predicted greater aggression against both innocent targets and provocateurs. These associations occurred above-and-beyond general aggressiveness, impulsivity, and other "dark" traits. Sadism was associated with greater positive affect during aggression, which accounted for much of the variance in the sadism–aggression link. This aggressive pleasure was contingent on sadists' perceptions that their target suffered due to their aggressive act. After aggression, sadism was associated with increases in negative affect. Sadism thus appears to be a potent predictor of aggression that is motivated by the pleasure of causing pain. Such sadistic aggression ultimately backfires, resulting in greater negative affect. More generally, our results support the crucial role of anticipated and positive forms of affect in motivating aggression.

Keywords

sadism, aggression, dark tetrad, positive affect, emotion

Received June 15, 2018; revision accepted November 3, 2018

Introduction

The wholesome pleasure of prosocial acts must contend with humankind's darker delights. Some people exhibit *sadism*, which involves "the deliberate infliction of pain for the sake of enjoyment" (Nell, 2006, p. 227). Sadistic tendencies are not purely the domain of violent criminals but appear among nonclinical and noncriminal populations (Buckels, Jones, & Paulhus, 2013). Preliminary evidence links sadism to aggression, yet many aspects of sadistic aggression remain incompletely understood. This investigation examined the robustness of the sadism–aggression link across a variety of contexts, targets, and operationalizations of aggression. Furthermore, we examined whether sadists enjoyed the aggressive act and whether the victim's pain caused this aggressive pleasure.

Sadism: The Pleasure of Inflicting Pain

Sadism is a constellation of personality traits that are characterized by the tendency to enjoy the suffering of others (Baumeister, 1997; Nell, 2006). Rather than passively taking pleasure in others' pain, sadists actively perpetrate harm, motivated by the enjoyment of the aggressive act and the painful outcome (O'Meara, Davies, & Hammond, 2011). In the past, sadism was as a clinically diagnosable form of psychopathology, yet such diagnoses have now changed (e.g., sexual sadism disorder; Krueger, 2010). More contemporary approaches to sadism conceptualize it as a continuously distributed facet of "dark" personality that extends beyond forensic and clinical samples into the broader distribution of humankind (Buckels et al., 2013; Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009; O'Meara et al., 2011).

The "Dark Triad" and Forms of Aggression

Clues about sadism's link to aggression are likely to come from the research on the "dark triad": Machiavellianism (manipulating others to fulfill selfish goals), Narcissism (holding grandiose and vulnerable views of the self), and psychopathy (sensation-seeking and callous disregard for others; Furnham, Richards, & Paulhus, 2013; Paulhus & Williams, 2002). The dark triad often predicts aggressive traits (Jonason & Webster, 2010) and acts (e.g., bullying; Baughman, Dearing, Giammarco, & Vernon, 2012). However, the type of aggression is critical to understanding the links between the

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dark triad and harm-doing. Harming innocent targets in the absence of provocation is deemed *proactive* aggression, which can be juxtaposed against *reactive* aggression that takes the form of retaliation against perceived provocateurs (Raine et al., 2006). These forms of aggression are not mutually exclusive and correlate strongly (Miller & Lynam, 2006). Narcissism is associated with greater reactive aggression, particularly retaliatory acts in response to ego threats (Bushman & Baumeister, 1998; c.f. Kirkpatrick, Waugh, Valencia, & Webster, 2002). Psychopathy is linked to both proactive (Porter & Woodworth, 2006; Raine et al., 2006) and (to a lesser extent) reactive aggression (Reidy, Zeichner, & Martinez, 2008; Reidy, Zeichner, Miller, & Martinez, 2007). When compared in a meta-analytic framework, psychopathy had the strongest association with proactive aggression followed by Machiavellianism, whereas Narcissism was unassociated with proactive aggression (Webster et al., 2014). Some scholars argue that the dark triad form the latent basis of aggressive dispositions and replace the unitary construct of "trait aggression" (Paulhus, Curtis, & Jones, 2018). Sadism is considered part of these dark traits, forming a "dark tetrad" (Paulhus, 2014). Although the links between the dark triad and aggression have been well-established, the potential role of sadism in aggression is less understood.

Preliminary Evidence for the Sadism–Aggression Link

Nascent research has hinted at a link between sadism and aggression. For instance, sadism correlates positively with trait physical aggression and is a core feature of trait revenge-seeking (Chester & DeWall, 2018). However, such correlations use self-report instead of overt behavior. Initial research on the relationship between sadism and aggressive *behavior* focused on the infliction of harm upon innocent targets. For example, sadism is linked to harming insects and innocent humans who refuse to retaliate (Buckels et al., 2013). Implicit sadism was associated with greater electric shocks administered to an innocent target (Reidy, Zeichner, & Seibert, 2011). Sadism is also uniquely associated with self-reported acts of sexual violence (Russell & King, 2016), tendencies toward antisocial vices (Jonason, Zeigler-Hill, & Okan, 2017), and self-reports of conventional and online forms of bullying and "trolling" behavior (Buckels, Trapnell, & Paulhus, 2014; March, Grieve, Marrington, & Jonason, 2017).

Despite this array of research, further confirmation is necessary to establish sadism's link to aggression. One reason for this uncertainty is that only a handful of studies have assessed sadism's link to actual behavioral measures of aggression. Among these few studies, aggression was operationalized proactively, as the targets of aggression were innocent victims (e.g., Buckels et al., 2013). Aggression is more often reactive than proactive because provocation is the most reliable situational predictor of aggression (Anderson & Bushman, 2002). Sadism's link to reactive aggression remains uncertain, and therefore, the sadism–aggression link is uncertain. Despite this lack of evidence, there are good theoretical reasons to expect that sadism would be associated with reactive aggression, largely centering on the role of positive affect.

The Role of Positive Affect in Aggression

Traditionally, aggression was theorized to arise from negatively valenced affective states such as frustration and pain (Berkowitz, 1989). More recently, a wealth of evidence has arisen to support the role of *positive*ly valenced affect in motivating revenge and retaliatory aggressive behavior (Chester, 2017). For example, reading about acts of retaliatory aggression induces positive affect (Eadeh, Peak, & Lambert, 2017). Actual acts of retaliatory aggression are associated with activity in the brain's reward network (Chester & DeWall, 2016) and genetic profiles that modulate pleasure-seeking (Chester et al., 2016, 2015). This hedonic reward appears to form a positive feedback loop in which acts of violence beget even more acts of violence (Martens, Kosloff, Greenberg, Landau, & Schmader, 2007). The perceived and ephemeral ability of aggression to regulate and improve aversive affective states further fuels this cyclical aggression (Bushman, Baumeister, & Phillips, 2001; Chester & DeWall, 2017; Gollwitzer & Bushman, 2012). This positive feedback loop may even explain the development of stable, sadistic tendencies.

Such a positive feedback loop meshes well with the General Aggression Model (Anderson & Bushman, 2002; DeWall, Anderson, & Bushman, 2011). Specifically, sadism acts as a personality input variable that increases the likelihood of aggression through the internal route of positive affect. Such a positive, rewarding experience informs appraisal and decision processes when sadists encounter potential victims, making them more likely to engage in impulsive acts. Those impulsive acts, in turn, influence how sadists approach their future social encounters, strengthening the knowledge structures that form the basis of how they interpret and react to events in their social world. The next section fleshes out this potential tendency for sadism to experience the pleasure of aggression.

Sadism and the Pleasure of Aggression

Some individuals are more prone than others to experience the pleasure of aggression, and sadism measures are designed to capture this variability (Chester & DeWall, 2018). Only preliminary evidence exists for sadism's link to aggression-related positive affect (i.e., aggressive pleasure). Sadism was positively correlated with more enjoyment of killing insects (Buckels et al., 2013) and "trolling" others online (Buckels, Trapnell, Andjelovic, & Paulhus, in press; Buckels et al., 2014). However, little evidence links sadism to the pleasure

of harming other individuals across proactive and reactive forms of aggression. It also remains uncertain from what aspect of the aggressive act do sadists derive pleasure. Theoretical accounts of sadism invoke the suffering of the victim as the source of aggressive pleasure (Baumeister, 1997; Nell, 2006), yet there is no evidence for this proposal. Such evidence is necessary to determine the very nature of the sadism construct. Furthermore, the timecourse of aggressive pleasure remains uncertain, whether it arises during or after the aggressive act and how long the feeling lasts after the aggressive act.

Present Research

To fill these gaps in the literature, the present research tested the over-arching hypotheses that (1 and 2) sadism would be associated with greater proactive and reactive aggressive behavior, (3 and 4) sadism would be associated with greater positive affect during and after the aggressive act, and (5) such aggressive pleasure would be contingent upon the actual suffering of the intended target. In an exploratory fashion, we also examined the role of sadism in *negative* affect during and after aggressive acts.

To test these hypotheses, we conducted eight studies in which we measured participants' dispositional sadism and gave them an opportunity to act aggressively, either in response to or in the absence of provocation. Many of these studies included measures of negative and positive affect during and after aggression, experimental manipulations of interpersonal provocation, measures of crucial covariates to ensure the specificity of the sadism–aggression link, and variations in the victim's level of suffering due to the aggressive act.

Statistical Power Statement

Meta-analytic estimates of the mean effect size for aggression studies in personality and social psychology yield r = .24 (k = 3,323; Richard, Bond, & Stokes-Zoota, 2003). Therefore, samples of 130 or more participants have at least 80% power to detect main effects of this magnitude or larger. A priori power analyses were not used to determine the sample sizes in any of the eight studies, though they surpass this sample size threshold (excepting Study 3, N = 126). Some of our more complex inferential tests (e.g., moderation, indirect effects) may be powered below the 80%.

Study 1

Study 1 tested the hypothesis that sadism would predict greater retaliatory aggression. Participants were provoked and reported their sadism, as well as their trait self-control and impulsivity, to test whether sadistic aggression is driven by general impulsivity. Psychopathy was also measured to assess sadism's link to aggression, above-and-beyond the dark triad (Buckels et al., 2013). To test whether individuals enjoyed the aggressive act, we measured participants' positive and negative affect after the aggression measure.

Method

Participants. Participants were 162 undergraduates (116 females, 42 males, four missing gender data).

Materials. Participants completed the Brief Self-Control Scale (BSCS; Tangney, Baumeister, & Boone, 2004), positive and negative affect items from the Need Threat Scale (NTS; K. D. Williams, 2009), Levenson Self-Report Psychopathy scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995), Short Sadistic Impulse Scale (SSIS; O'Meara et al., 2011), and the UPPS-P Impulsivity Scale (Lynam, Smith, Whiteside, & Cyders, 2006; Whiteside & Lynam, 2001).

Procedure. This study was part of a larger project on the role of psychostimulants on aggression. Participants arrived at our laboratory where they were randomly assigned to receive either a capsule containing 100 mg of caffeine, a placebo capsule, or no capsule. Participants who received a capsule were blind to its contents. Participants reported their baseline affective state and watched nature videos for 30 min. Participants were then experimentally provoked (as in Pedersen, Gonzales, & Miller, 2000). To do so, participants were asked to complete a list of difficult and impossible anagrams. The experimenter repeatedly interrupted the participant and expressed frustration with their poor performance, eventually ending the task prematurely. Participants then completed the Taylor Aggression Paradigm (TAP) against another same-gender undergraduate student.

The TAP is a well-validated measure of behavioral, retaliatory aggression framed as a competitive reaction time game played over the Internet with a fictitious opponent (Anderson & Bushman, 1997; Chester & Lasko, in press; Giancola & Chermack, 1998; Taylor, 1967). For each of the 17 trials of the task, participants set the volume (60-105 decibels) and duration (0-5 s) of an aversive noise blast that their opponent ostensibly heard if participants won the competition (i.e., press a button faster). Within the volume and duration settings, responses were coded along a 1 (*lowest volume, shortest duration*) to 10 (*highest volume, longest duration*) score gradient. A nonaggression option was also provided (coded as 0). The order of participant wins and losses were randomized and then held constant across all participants, excepting when participants failed to respond in time (in which they automatically lost the trial to ensure believability). Participants' opponents always selected the loudest and longest noise blast on the first trial to provoke participants. This approach to setting the wins, losses, and opponent's noise blast settings was used in all subsequent studies that employed the TAP. Finally, participants reported their affective state again and then reported their sadism and psychopathy.

Table 1. Sadism's Association With Aggressive Behavior on the Taylor Aggression Paradigm in Study 1.

Model	Predictor	β	*t*	*df*	*p*	ΔR^2
1	Sadism	.25	3.05	145	.003	
2	Caffeine vs. placebo pill	.05	0.58	143	.562	
	Pill vs. no pill	−.07	−0.79	143	.432	
	Sadism	.23	2.85	143	.005	.05
3	Gender	.13	1.44	144	.152	
	Sadism	.19	2.08	144	.039	.03
4	Caffeine vs. placebo pill	.05	0.58	142	.564	
	Pill vs. no pill	−.06	−0.78	142	.437	
	Self-control	.00	0.05	142	.962	
	Sadism	.23	2.78	142	.006	.05
5	Caffeine vs. placebo pill	.00	0.01	141	.993	
	Pill vs. no pill	−.04	−0.48	141	.632	
	Psychopathy—Primary	.19	1.86	141	.065	
	Psychopathy—Secondary	.04	0.43	141	.669	
	Sadism	.18	2.02	141	.045	.03
6	Caffeine vs. placebo pill	.03	0.30	138	.768	
	Pill vs. no pill	−.04	−0.53	138	.596	
	Lack of perseverance	−.18	−1.92	138	.057	
	Lack of premeditation	.00	0.01	138	.994	
	Negative urgency	.11	0.83	138	.411	
	Positive urgency	.02	0.17	138	.864	
	Sensation seeking	.01	0.08	138	.935	
	Sadism	.25	2.97	138	.004	.06

Note. Gender is coded as male = 1, female = −1.

Results

Descriptive statistics. All self-report measures exhibited sufficient internal consistency except the SSIS (Supplemental Table 1), which was largely driven by a single, reverse-scored item "I wouldn't intentionally hurt anyone." We recalculated the SSIS without this item and performed analyses using the new, nine-item scale (Supplemental Table 1). We averaged volume and duration levels across all 17 trials (as recommended by Chester & Lasko, in press). Descriptive statistics are summarized in Supplemental Table 1. Zero-order correlations between all study variables are summarized in Supplemental Table 2.

Correlations with aggressive behavior. Sadism was associated with greater aggressive behavior, $r(145) = .25$, $p = .003$, and this association remained after controlling for trait self-control, primary and secondary psychopathy, and all five facets of impulsivity (Table 1). We used two contrast codes to examine potential effects of the pill condition. The first code contrasted the effect of the caffeine condition (contrast weight: 1) against the placebo condition (contrast weight: –1), while not modeling the no pill condition (contrast weight: 0). The second code contrasted the effect of taking either the caffeine (contrast weight: 1) or placebo (contrast weight: 1) pill against the no pill condition (contrast weight: –2).

Correlations with postaggression affect. Sadism was associated with greater postaggression negative and positive affect (Supplemental Table 2). After controlling for baseline negative affect, postaggression negative affect was no longer associated with sadism, $r(125) = .14$, $p = .126$. After controlling for baseline positive affect, postaggression positive affect was no longer associated with sadism, $r(125) = -.13$, $p = .136$.

Study 2

Study 2 sought to replicate Study 1 using a different aggression measure: the hot sauce paradigm. Study 2 also tested whether sadism was associated with either proactive or reactive aggression or both, and whether sadism's link to such aggression would occur even if participants had to experience the same suffering as their victim.

Method

Participants. Participants were 168 undergraduates (118 females, 47 males, three missing gender data). Participants were excluded if they had a relevant food allergy.

Procedure. Participants arrived at the laboratory where they were randomly assigned to be either socially rejected or accepted via two same-gender students in the Cyberball

Table 2. Sadism's Association With Aggressive Behavior on the Hot Sauce Aggression Paradigm in Study 2.

Model	Predictor	β	*t*	*df*	*p*	ΔR^2
1	Sadism	.16	1.95	147	.053	
2	Gender	.19	2.27	146	.025	
	Sadism	.12	1.48	146	.141	.01
3	Rejection condition	.17	0.65	145	.519	
	Sadism	.13	1.38	145	.169	.02
	Rejection × Sadism	−.22	−0.82	145	.416	.00
4	Self-harm condition	−.04	−0.17	145	.865	
	Sadism	.16	1.90	145	.060	.03
	Self-Harm × Sadism	.02	0.09	145	.925	.00
5	Rejection condition	−.06	−0.77	143	.442	
	Self-harm condition	−.02	−0.27	143	.790	
	Psychopathy—Primary	.12	1.27	143	.205	
	Psychopathy—Secondary	.11	1.19	143	.236	
	Sadism	.07	0.69	143	.489	.00

Note. Gender is coded as male = 1, female = −1. Rejection condition is coded as rejection = 1, acceptance = −1.

paradigm (version 4.0; K. S. Williams, Yeager, Cheung, & Choi, 2012). Next, participants retrospectively reported their negative and positive affect during the Cyberball task using the NTS, completed the SSIS and Self-Report Psychopathy Scale, and then completed the hot sauce aggression paradigm (Lieberman, Solomon, Greenberg, & McGregor, 1999) against one of their Cyberball partners. Participants were told that they were going to complete a separate study on taste preferences. Each participant completed a short questionnaire about their own food preferences, which were supposedly exchanged with one of their Cyberball partners. Participants tasted the hot sauce and then assisted the experimenters by measuring the same hot sauce for one of their Cyberball partners, using the partner's food questionnaire to guide their decision. Just prior to administering the hot sauce to their partner, participants were randomly assigned to be told that they would either have to eat as much hot sauce as they allocated to their Cyberball partner, or not. After allocating the hot sauce to their partner, participants again reported their current negative and positive affect using the NTS.

Results

Descriptive statistics. Nineteen participants were excluded from analyses because they previously completed the Cyberball paradigm. All self-report measures exhibited sufficient internal consistency, except the Secondary Psychopathy subscale of the LSRP and the SSIS (Supplemental Table 3), which was again largely driven by the single, reverse-scored item. As in Study 1, we used the SSIS without this item. Hot sauce allocations were positively skewed (skew = 3.21) but not zero-inflated (5.4% zeroes). Therefore, we conducted base 10 logarithmic transformations of these values (adding 1 beforehand to ensure that 0 values would still be transformed; as in DeWall, Twenge, Bushman, Im, & Williams, 2010; Webster & Kirkpatrick, 2006). This approach reduces problems with skew and kurtosis in aggression data (Chester & Lasko, in press). Descriptive statistics are summarized in Supplemental Table 3 and zero-order correlations between all study variables are summarized in Supplemental Table 4.

Correlations with aggressive behavior. Sadism was unassociated with greater hot sauce allocations, $r(147) = .16$, $p = .053$. This null effect was not moderated by the Cyberball manipulation or whether participants believed that they would have to consume as much hot sauce as they allocated to their partner (Table 2). Sadism was unassociated with aggression after controlling for primary and secondary psychopathy (Table 2).

Correlations with postaggression affect. Sadism was significantly associated with greater negative but not positive affect after aggression (Supplemental Table 4). Sadism remained associated with greater negative affect after aggression after controlling for prior negative affect, $r(145) = .20$, $p = .015$. Conversely, sadism remained unassociated with positive affect after aggression after controlling for prior positive affect, $r(145) = -.07$, $p = .403$.

Study 3

Study 3 sought to replicate Study 2 using an online aggression measure.

Method

Participants. Participants were 126 undergraduates (62 females, 64 males).

Procedure. Participants completed the study online, in which they were randomly assigned to be either socially rejected or accepted via two same-gender students in the Cyberball

paradigm (version 4.0; K. S. Williams et al., 2012). Afterward, participants retrospectively reported their negative and positive affect during Cyberball via the NTS and then completed an image-assignment aggression measure (as in Gollwitzer & Bushman, 2012). To do so, participants chose the number of "images that depict aversive scenes such as homicide crime scenes, rotting animal carcasses, and traumatic injuries" for one of their Cyberball partners to see (between 0 and 9 images). Participants were randomly assigned to be told that the person who would view these images was either one of their Cyberball partners or a new person (i.e., an innocent target). Participants again reported their levels of negative and positive affect via the NTS and completed the SSIS.

Results

Descriptive statistics. Descriptive statistics are summarized in Supplemental Table 5 and zero-order correlations between all study variables are summarized in Supplemental Table 6.

Correlations with aggressive behavior. Sadism was associated with greater numbers of gruesome images assigned to be viewed by another person, $r(123) = .18$, $p = .049$. The association between sadism and gruesome image allocation was not moderated by whether participants had been experimentally rejected or whether their aggression was directed at their Cyberball partners or a new person (Table 3).

Correlations with postaggression affect. Sadism was associated with greater negative affect after aggression (Supplemental Table 6), even after controlling for prior negative affect, $r(118) = .24$, $p = .008$. Sadism was not associated with less positive affect after aggression (Supplemental Table 6), even after controlling for prior positive affect, $r(118) = -.11$, $p = .232$.

Study 4

Study 4 sought to replicate the previous studies with an array of aggression measures, while also including a measure of affect *during* the aggressive act.

Method

Participants. Participants were 211 undergraduates (132 females, 73 males, six missing gender data[1]).

Measures. Participants completed the History of Physical Fights Scale (Chester & Lasko, in press) and an ad hoc questionnaire in which participants retrospectively reported various positively valenced feelings they experienced during an act of aggression. Such retrospective affect reports are quite accurate (Harmon-Jones, Bastian, & Harmon-Jones, 2016) and allowed us to test whether sadism was linked to positive affect in the midst aggression, not just afterward. Thirty-six positively valenced items were acquired from the NTS, Positive Affect Negative Affect Schedule (PANAS), Profile of Mood States (S. L. Curran, Andrykowski, & Studts, 1995), Discrete Emotions Questionnaire (Harmon-Jones et al., 2016), and generated independently by the authors (list of items available in Supplemental Table 7). Participants retrospectively reported whether they experienced these 36 affective states *during* the TAP ("indicate the extent to which this [affective state] described how you felt when your opponent received the noise blasts that you picked in the competitive reaction-time task"). An exploratory factor analysis (EFA) detailed in Study 7 produced a nine-item measure of Aggressive Pleasure from this larger item-set (final items available in Supplemental Table 8). Study 7 was used for this EFA instead of Study 4 given its much larger sample size.

Procedure. Participants arrived individually to the laboratory. To experimentally induce retaliatory aggression, this study used an essay-evaluation paradigm in which participants received harsh or positive feedback on an essay (Bushman & Baumeister, 1998; Chester & DeWall, 2017). The essay evaluation contained either negative (8/35 points, "One of the WORST essays I've EVER read!") or positive (33/35 points, "Great essay!") feedback, as determined by random assignment. Participants then completed a 25-trial version the TAP, which was otherwise identical to the task used in Study 1, the Hot Sauce Aggression Task (as in Study 2), and the Voodoo Doll Aggression Task (VDAT). The VDAT presents participants with a virtual representation of a human target that participants are given an opportunity to symbolically harm that person by harming the doll (DeWall et al., 2013). Participants selected the number of virtual, sharp pins that they wished to stick into a plush human doll as a symbolic representation of their actual essay evaluator (from 0 to 51 pins). Finally, participants completed a battery of questionnaires, which included the Positive Affect During Aggression Scale and the SSIS.

Results

Descriptive statistics. Hot sauce allocations were leptokurtic (kurtosis = 2.77) but not zero-inflated (10.3% zeroes). Voodoo doll pin counts were positively skewed (skew = 2.18), leptokurtic (kurtosis = 4.37), and zero-inflated (36.9% zeroes). Therefore, we conducted logarithmic transformations of these values (as in Study 2). Because of the extensive zero inflation in Voodoo Doll pin counts, we adopted generalized linear modeling that specified a Poisson distribution (as recommended by DeWall et al., 2013). This Poisson approach was also adopted for reports of violence over the past year and past 5 years from the History of Physical Fights Scale, due to their extensive zero inflation: 65.5% zeroes and 86.8% zeroes, respectively. Descriptive statistics are summarized in Supplemental Table 9. Zero-order correlations between all study variables are summarized in Supplemental

Table 3. Sadism's Association With Aggressive Behavior in Study 3.

Model	Predictor	β	*t*	*df*	*p*	ΔR^2
1	Sadism	.18	1.99	123	.049	
2	Gender	.03	0.30	122	.533	
	Sadism	.17	1.90	122	.060	.03
3	Rejection condition	.40	1.93	121	.056	
	Sadism	.16	1.80	121	.074	.03
	Rejection × Sadism	−.35	−1.70	121	.091	.02
4	Retaliatory condition	−.59	−2.76	121	.007	
	Sadism	.03	0.31	121	.761	.02
	Retaliatory × Sadism	.43	2.01	121	.047	.03
5	Rejection condition	.44	1.63	117	.105	
	Retaliatory condition	−.56	−2.58	117	.011	
	Sadism	.03	0.30	117	.767	
	Rejection × Sadism	−.36	−1.48	117	.142	
	Retaliatory × Sadism	.42	1.93	117	.056	
	Rejection × Retaliatory	−.19	−0.62	117	.535	
	Rejection × Retaliatory × Sadism	.10	0.35	117	.730	.00

Note. Gender is coded as male = 1, female = −1; rejection condition is coded as rejection = 1, acceptance = −1; and retaliatory condition is coded as retaliatory = 1, non-retaliatory = −1.

Table 10. The nine-item version of the SSIS was adopted due to internal consistency issues, as in Studies 1 and 2.

Correlations with aggressive behavior and pleasure. Sadism was associated with administering louder and longer noise blasts to essay evaluators, $r(180) = .19$, $p = .011$, though not with greater hot sauce allocations, $r(175) = .06$, $p = .442$. Using Poisson modeling, sadism was associated with greater voodoo doll pin counts, $B = 0.35$, $\chi^2(1,170) = 69.95$, $p < .001$, and greater frequencies of physical fights over the past 5 years, $B = 1.10$, $\chi^2(1,180) = 54.20$, $p < .001$, and past year, $B = 0.76$, $\chi^2(1,177) = 61.18$, $p < .001$. The sadism–aggression link was not moderated by prior provocation, excepting the case of voodoo doll pin counts, in which provocation attenuated the effect of sadism on pin counts (Table 4). As evidence for the construct validity of our sadism measure, sadism was associated with greater reports of pleasure during noise blast administration, $r(180) = .19$, $p = .009$.

Structural equation modeling: Estimating direct and indirect effects of sadism and aggressive pleasure on a latent form of aggressive behavior. We used structural equation modeling to examine whether the pleasure of the aggressive act accounted for the sadism–aggression link (Figure 1). All three aggression measures were modeled onto a latent aggression factor. The two physical fight variables were too zero-inflated to warrant inclusion in this parametric model. Bias-corrected bootstrapping was used to estimate the indirect effect and its associated 95% confidence interval (CI; 500 bootstrap samples; via AMOS 24.0 software). The variance of the latent aggression factor was pre-set to 1 to allow for the estimation of all paths. Overall, the model fit the data well—$\chi^2(4) = 3.64$, $p = .458$; comparative fit index (CFI) = 1.00; normed fit index (NFI) = 0.94; root mean square error of approximation (RMSEA) = .00 (90% CI = [0.00, 0.11]); Tucker–Lewis index (TLI) = 1.02—though hot sauce allocations failed to significantly load onto the latent aggression factor. Sadism was linked to greater aggressive behavior through greater pleasure during the aggressive act—indirect effect: $B = .05$, $SE = .03$, 95% CI = [0.01, 0.14], $p = .013$. Thus, sadism's link to aggression is explained, in part, by the enjoyment of the aggressive act.

Study 5

Study 5 sought to replicate the previous studies while including a baseline affect measure that was missing from Study 4. Without a baseline affect estimate, the results of Study 4 could be due to underlying differences in affect levels between individuals high and low in sadism. Study 5 included measures of negative and positive affect before, during, and after aggression. Study 5 also included a measure of trait aggression as an additional control variable.

Method

Participants. Participants were 156 adult participants recruited from Amazon's Mechanical Turk subject pool (75 females, 80 males, one missing gender data). Participants were compensated with US$0.50.[2]

Materials. Participants completed the 12-item Brief Aggression Questionnaire, a short-form of the 29-item Buss-Perry (1992) Aggression Questionnaire (BAQ; Webster et al., 2014).

Table 4. Sadism's Association With Aggressive Behavior in Study 4.

Model	Aggression measure	Predictor	β	*t*	*df*	*p*	ΔR^2
1	Hot Sauce Aggression Task	Sadism	.06	0.77	175	.442	
2		Gender	.20	2.63	174	.009	
		Sadism	.01	0.18	174	.861	.00
3		Provocation condition	−.05	−0.21	173	.833	
		Sadism	.05	0.65	173	.519	.00
		Provocation × Sadism	.05	0.23	173	.817	.00
4	Taylor Aggression Paradigm	Sadism	.19	2.58	180	.011	
5		Gender	−.11	−1.43	179	.154	
		Sadism	.21	2.84	179	.005	.04
6		Provocation condition	.29	1.41	178	.160	
		Sadism	.18	2.34	178	.020	.03
		Provocation × Sadism	−.12	−0.58	178	.586	.00
7	Voodoo Doll Aggression Task	Sadism	.14	1.83	170	.069	
8		Gender	−.22	−2.86	169	.005	
		Sadism	.19	2.44	169	.016	.03
9		Provocation condition	.66	3.19	168	.002	
		Sadism	.16	2.03	168	.044	.01
		Provocation × Sadism	−.44	−2.08	168	.039	.02

Note. Gender is coded as male = 1, female = −1. Provocation condition is coded as provoked = 1, unprovoked = −1.

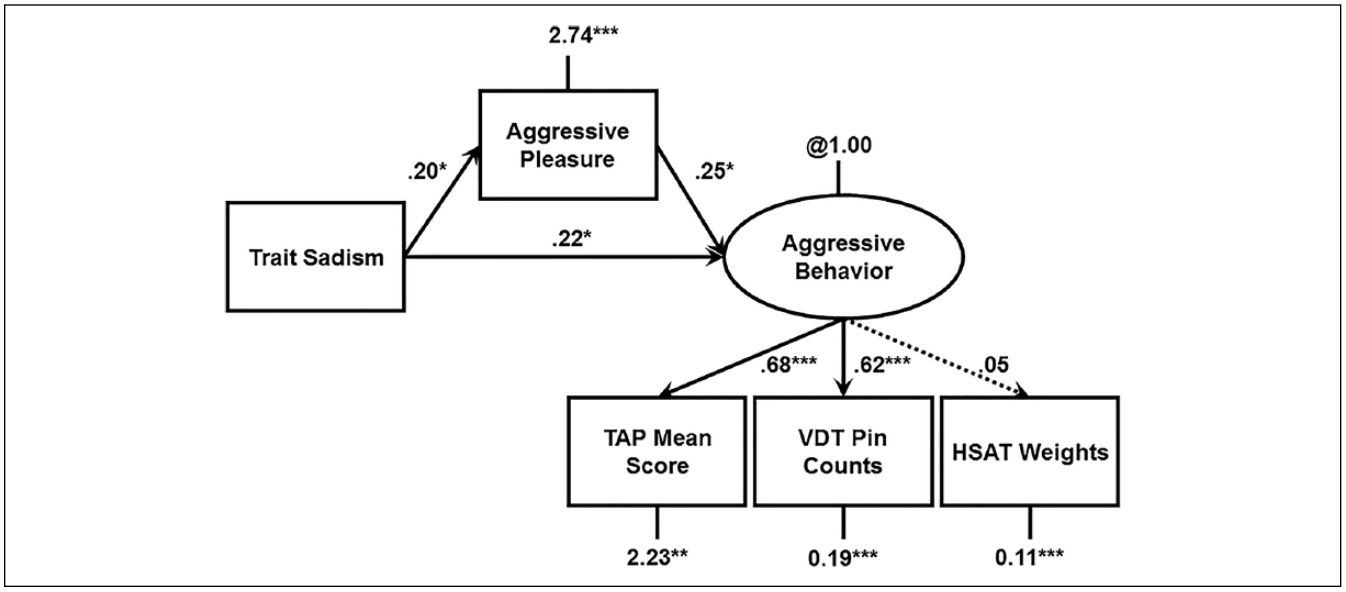

Figure 1. Structural equation model from Study 4 modeling the indirect effect of sadism on aggression via greater aggressive pleasure.
Note. Values above paths represent standardized coefficients, and values attached to variables represent residual, unstandardized variances. Dashed paths are nonsignificant. TAP = Taylor Aggression Paradigm, VDT = Voodoo Doll Task, HSAT = Hot Sauce Aggression Task.
*$p < .05$. **$p < .01$. ***$p < .001$.

Procedure. Participants were randomly assigned to be provoked or not through an online version of the essay-evaluation paradigm employed in Study 4. After the essay task, participants reported their current negative and positive affect using the NTS, and then completed the VDAT (target was "your essay evaluator"). After confirming their pin count, participants retrospectively reported their negative and positive affect experienced *during* the VDAT and then reported their current negative and positive affect, in both cases using variants of the NTS. Finally, participants completed the SSIS and Brief Aggression Questionnaire. Embedded in this battery of questionnaires was a single quality check item that asked participants to pick a specific number from a number array.

Results

Descriptive statistics. Three participants failed the quality check and were removed from all subsequent analyses. Voodoo doll pin counts were not excessively skewed (skew = 1.54) or kurtotic (kurtosis = 1.02) but they were zero-inflated (50.3% zeroes). To address this zero inflation, we adopted a Poisson analytic approach. Descriptive statistics are summarized in Supplemental Table 11. Zero-order correlations between all study variables are summarized in Supplemental Table 12.

Correlations with aggressive behavior. Sadism was associated with a greater number of pins stuck in the voodoo doll, which remained statistically significant after controlling for gender and the four facets of trait aggression (Table 5). As in Study 4, the effect of sadism on aggression was attenuated by the provocation manipulation (Table 5).

Correlations with affect during aggression. An indirect effect analysis (using 5,000 bias-corrected and accelerated bootstrap samples via the PROCESS macro for SPSS v.3.1, model 4; Hayes, 2012) showed that the direct effect of sadism on log-transformed aggression scores was explained, in part, by positive affect experienced during the aggressive act—indirect effect: $B = 0.04$, $SE = 0.02$, 95% CI = [0.01, 0.08]—but not through negative affect experienced during the aggressive act—$B = -0.00$, $SE = 0.01$, 95% CI = [–0.01, 0.01] (difference between these indirect effects, $B = 0.04$, $SE = 0.02$, 95% CI = [0.01, 0.08])—controlling for postessay feedback negative and positive affect (Figure 2).

Correlations with postaggression affect. Sadism was associated with greater negative affect after aggression (Supplemental Table 12), even after controlling for prior negative affect, $r(149) = .26$, $p = .001$. Sadism was unassociated with positive affect after aggression (Supplemental Table 12), even after controlling for prior positive affect, $r(149) = .06$, $p = .456$.

Study 6

Study 6 sought to replicate the previous studies using a different affect measure. Furthermore, Study 6 manipulated self-regulatory fatigue, given evidence linking this experience to heightened aggression (Denson, DeWall, & Finkel, 2012).

Method

Participants. Participants were 238 undergraduates (176 females, 62 males).

Materials. Participants completed the PANAS, a validated measure of current levels of positive and negative affect (i.e., mood; Watson, Clark, & Tellegen, 1988).

Table 5. Sadism's Association With Aggressive Behavior on the Voodoo Doll Aggression Task in Study 5.

Model	Predictor	*B*	χ^2	*df*	*p*
1	Sadism	0.37	497.89	1, 150	<.001
2	Gender	−0.30	33.63	1, 149	<.001
	Sadism	0.38	520.53	1, 149	<.001
3	Provocation condition	2.28	311.20	1, 148	<.001
	Sadism	0.22	131.07	1, 148	<.001
	Provocation × Sadism	−0.35	82.87	1, 148	<.001
4	Provocation condition	1.28	364.94	1, 145	<.001
	Anger	0.05	4.01	1, 145	.045
	Hostility	0.25	109.24	1, 145	<.001
	Physical aggression	0.14	66.98	1, 145	<.001
	Verbal aggression	−0.19	57.42	1, 145	<.001
	Sadism	0.14	39.01	1, 145	<.001

Note. Gender is coded as male = 1, female = −1. Provocation condition is coded as provoked = 1, unprovoked = −1.

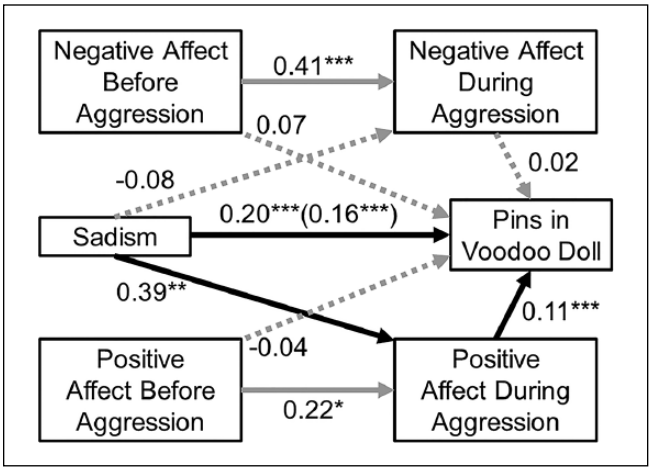

Figure 2. Statistical model from Study 5, modeling the indirect effect of sadism on aggression through greater positive affect during aggression.
Note. Key paths are highlighted in black. Values represent unstandardized regression coefficients, dashed lines represent nonsignificant effects, and value in parentheses is direct effect after controlling for indirect effect.
*$p < .05$. **$p < .01$. ***$p < .001$.

Procedure. Participants arrived at the laboratory where they were randomly assigned to write an essay for 5 min about a personally meaningful event. Participants were randomly assigned to not use the letters X or Z (control condition) or A or N (fatigue condition; as in Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009). After doing so, participants completed the PANAS and then completed a series of benign, cognitive tasks that were related to a larger project on self-regulation (e.g., Stroop Task). Then, participants completed the VDAT against an imagined person from participants' real lives that they "feel a great amount of anger toward." Participants again reported their affective state

during and after aggression via the PANAS, and then completed the SSIS.

Results

Descriptive statistics. Voodoo doll pin counts were not excessively skewed (skew = 1.49) or kurtotic (kurtosis = 0.98) but they were zero-inflated (42.2% zeroes). Because of the extensive zero inflation, we adopted a Poisson approach. Descriptive statistics are summarized in Supplemental Table 13. Zero-order correlations between all study variables are summarized in Supplemental Table 14. The nine-item version of the SSIS was adopted due to internal consistency issues, as in Studies 1, 2, and 4.

Correlations with aggressive behavior. Aggressive behavior was associated with sadism, which was observed after controlling for gender (Table 6). As in Studies 4 and 5, the sadism–aggression link was attenuated by the study's experimental manipulation, in this case, of self-regulatory fatigue (Table 6).

Correlations with affect during aggression. The effect of sadism on aggression was explained, in part, by positive affect experienced during the aggressive act—$B = 0.04$, $SE = 0.03$, 95% CI = [0.01, 0.10]—but not through negative affect experienced during the aggressive act—$B = -0.00$, $SE = 0.01$, 95% CI = [–0.03, 0.03] (though the difference between these indirect effects was not significant, $B = 0.04$, $SE = 0.03$, 95% CI = [–0.11, 0.01])—controlling for baseline affect (Figure 3).

Correlations with postaggression affect. Sadism was associated with greater negative affect after aggression (Supplemental Table 14), even after controlling for prior negative affect, $r(234) = .16$, $p = .016$. Sadism was unassociated with positive affect after aggression (Supplemental Table 14), even after controlling for prior negative affect, $r(234) = -.03$, $p = .602$.

Study 7

Study 7 served to replicate the previous studies employing a rejection manipulation, while also creating a novel state-level measure of pleasure experienced during aggression that was employed in Studies 4, 7, and 8. This study also combined multiple measures of sadism (to ensure that our effects were not specific to an individual measure of this construct), as well as assessments of the dark triad, to ensure the existence of the sadism–aggression link above-and-beyond these constructs. Finally, this study created a novel state-level measure of perceptions that the victim of an aggressive act suffered, to investigate the idea that aggressive pleasure is derived directly from the pain inflicted on the victim by the aggressive act.

Table 6. Sadism's Association With Aggressive Behavior on the Voodoo Doll Aggression Task in Study 6.

Model	Predictor	*B*	χ^2	*df*	*p*
1	Sadism	0.47	233.33	1, 235	<.001
2	Gender	−0.15	9.65	1, 234	.002
	Sadism	0.51	235.20	1, 234	<.001
3	Fatigue condition	0.67	43.06	1, 233	<.001
	Sadism	0.21	18.46	1, 233	<.001
	Fatigue × Sadism	−0.52	69.83	1, 233	<.001

Note. Gender is coded as male = 1, female = −1. Fatigue condition is coded as fatigued = 1, unfatigued = −1.

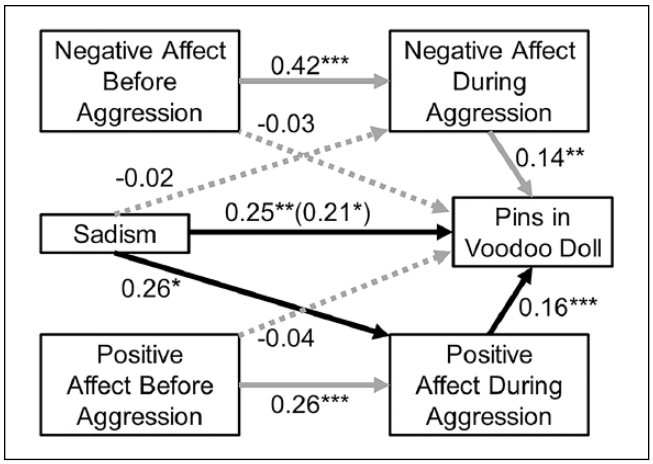

Figure 3. Statistical model from Study 6, modeling the indirect effect of sadism on aggression through greater positive affect during aggression.
Note. Key paths are highlighted in black. Values represent unstandardized regression coefficients, dashed lines represent nonsignificant effects, and value in parentheses is direct effect after controlling for indirect effect.
*$p < .05$. **$p < .01$. ***$p < .001$.

Method

Participants. Participants were 388 undergraduates (249 females, 134 males).

Materials. Participants completed the Assessment of Sadistic Personality (ASP; Plouffe, Saklofske, & Smith, 2017), the Comprehensive Assessment of Sadistic Tendencies scale (CAST; Buckels et al., in press), the Dirty Dozen Questionnaire (DD; Jonason & Webster, 2010), and the Victim Suffering Scale (VSS), in which participants were instructed to respond to the extent to which they perceived that the aggression they inflicted upon their opponent (via the VDAT) resulted in their victim's actual pain and suffering. They did so across 10 ad hoc statements (for list of items, see Supplemental Table 15), to which they responded along a 1 (*strongly disagree*) to 7 (*strongly agree*) scale.

Procedure. Participants completed the study online where they were randomly assigned to be either socially rejected or accepted via two same-gender students in the Cyberball paradigm (version 4.0; K. S. Williams et al., 2012). After the Cyberball task, participants completed the VDAT, with one of their Cyberball partners as the target. Participants then completed a battery of questionnaires that also included the Positive Affect During Aggression Scale (prompt: "Indicate the extent to which this statement described how you felt when you picked how many pins to stick in the doll."; for example, delighted, serene) and the SSIS. Embedded in the battery of questionnaires were two quality check items, which instructed participants to select a specific number from a number array.

Results

Descriptive statistics. Thirty-two participants failed at least one of the two quality checks and were subsequently excluded from all analyses. A 35-item sadism index was computed by averaging standardized responses from all 20 items of the ASP, all 10 items of the SSIS, and the five-item Direct Physical subscale of the CAST. The Vicarious and Direct Verbal subscales of the CAST were excluded as they were not relevant to the direct and physical forms of sadistic aggression examined in this study.

Voodoo doll pin counts were not excessively skewed (skew = 1.90) or leptokurtic (kurtosis = 2.71) but they were zero-inflated (47.5% zeroes). Because of the extensive zero inflation, we adopted a Poisson approach. Descriptive statistics are summarized in Supplemental Table 16. Zero-order correlations between all study variables are summarized in Supplemental Table 17.

EFA—Positive Affect During Aggression Scale. To assess the psychometric properties of the Positive Affect During Aggression Scale (PADAS), we conducted an iterated EFA (via SAS 9.4), using direct oblimin rotation ($\delta = 0$), which allowed for the extraction of correlated components. Five factors were retained based on the results of a parallel analysis (Horn, 1965). An "Aggressive Pleasure" subscale comprised nine items that exhibited substantial loadings onto this factor that were equal to or greater than $\pm .40$ (12.94% variance explained; Supplemental Table 8). None of these items exhibited problematic cross-factor loadings ($\pm .20$). The second and fifth factors were labeled as the "Calmness" (six-items [two excluded due to high cross-factor loadings]; 8.50% variance explained) and "Arousal" (four items; 7.39% variance explained) subscales, respectively. The third (five items [two excluded due to high cross-factor loadings]; 7.63% variance explained) and fourth factors (four items [two excluded due to high cross-factor loadings]; 8.11% variance explained) did not exhibit a coherent or theoretically sensible conceptual theme.

EFA—VSS. An identical EFA was applied to the responses to the 10 original items of the VSS. Only two factors yielded items with substantial loadings (Supplemental Table 15). The two reverse-coded items loaded onto one factor that was discarded (1.10% variance explained), whereas the other eight items loaded onto another factor that was retained (6.64% variance explained) and exhibited excellent internal consistency (Supplemental Table 16).

Correlations with aggressive behavior. Aggressive behavior on both the VDAT and History of Physical Fights Scale (HPFS) were associated with greater aggression, which was observed after controlling for the dark triad (Table 7).

Effect of victim suffering manipulation on aggressive pleasure. We tested the moderating ability of perceived victim suffering using the same PROCESS macro as detailed in Study 6; model 1. Sadism's association with aggressive pleasure experienced during aggression was magnified by perceived victim suffering, $B = 0.17$, $t(352) = 2.04$, $p = .043$, 95% CI = [0.01, 0.34] (Figure 4). At relatively high (+1 *SD*) levels of perceived victim suffering, sadism was positively associated with aggressive pleasure, $B = 0.62$, $t(352) = 3.89$, $p < .001$, 95% CI = [0.30, 0.93]. However, this effect was absent at relatively low (–1 *SD*) levels of perceived victim suffering, $B = 0.19$, $t(352) = 0.90$, $p = .371$, 95% CI = [–0.23, 0.61]. Similar interactions were not observed with the Calmness, $B = 0.06$, $t(352) = 0.63$, $p = .532$, 95% CI = [–0.13, 0.25], or Arousal, $B = 0.08$, $t(352) = 1.05$, $p = .296$, 95% CI = [–0.07, 0.23], subscales of the PADAS.

Study 8

Study 8 extended beyond Study 7's correlational evidence for the critical role of victim suffering in sadistic aggression by manipulating how much participants perceived that the victim of their aggression was truly harmed by the aggressive act and then measuring the extent to which they experienced pleasure in response to the suffering. In addition, this study used different measures of sadism and the dark triad as control variables.

Method

Participants. Participants were 207 undergraduates (166 females, 41 males).

Materials. Participants completed the Short Dark Triad Scale (SD3; Jones & Paulhus, 2014) and the Varieties of Sadistic Tendencies Scale (VAST; Paulhus & Jones, 2015).

Procedure. Participants arrived at the laboratory where they completed the VAST, SSIS, and the SD3 scale. Participants then completed a 25-trial version of the TAP (as in Study 4). Participants were randomly assigned to hear feedback from their opponent in the aggression paradigm that either

Table 7. Sadism's Association With Aggressive Behavior in Study 7.

Model	Predictor	*B*	χ^2	*df*	*p*
1	Sadism	0.38	244.91	1, 354	<.001
2	Gender	0.51	172.79	1, 348	<.001
	Sadism	0.32	166.40	1, 348	<.001
3	Rejection	0.24	33.23	1, 352	<.001
	Sadism	0.42	223.56	1, 352	<.001
	Rejection × Sadism	0.20	12.27	1, 352	<.001
4	Rejection	0.28	55.40	1, 350	<.001
	Machiavellianism	0.07	13.32	1, 350	<.001
	Narcissism	−0.13	76.69	1, 350	<.001
	Psychopathy	−0.07	7.73	1, 350	.005
	Sadism	0.44	204.04	1, 350	<.001

Note. Rejection condition is coded as rejection = 1, acceptance = −1. Gender is coded as male = 1, female = −1.

indicated they suffered due to the task's noise blasts ("Those noise blasts were unbearable! They were so loud they gave me a migraine!") or that the partner did not suffer ("Those noise blasts were nothing! Mostly, they were just annoying."). Participants completed the Aggressive Pleasure subscale of the Positive Affect During Aggression Scale, which was modified to assess levels of *currently felt* pleasure that lingered after the aggressive act. Finally, participants completed a manipulation check (Supplemental Table 15).

Results

Descriptive statistics. A 19-item sadism index was computed by averaging standardized responses from all 10 items of the SSIS and the nine-item Direct Sadism subscale of the VAST. We excluded the Vicarious Sadism subscale of the VAST because it was irrelevant to the direct and physical form of sadistic aggression measured in this study. We averaged both volume and duration levels across all 25 trials (as recommended by Chester & Lasko, in press). Descriptive statistics are summarized in Supplemental Table 18. Zero-order correlations between all study variables are summarized in Supplemental Table 19.

Manipulation check. As predicted, participants in the victim suffering condition reported more victim suffering (M = 2.51, SD = 1.45) than did participants in the no suffering condition (M = 1.83, SD = 1.09), $t(203) = 3.73$, $p < .001$, $d = 0.52$, 95% CI = [0.25, 0.80].

Correlations with aggressive behavior. Aggressive behavior on the TAP was not associated with sadism, $r(202) = .04$, $p = .620$, even after controlling for gender and the dark triad (Table 8).

Effect of victim suffering manipulation on aggressive pleasure. Sadism's association with postaggression pleasure was magnified by the victim suffering manipulation, $B = 0.47$, $t(201) = 2.43$, $p = .016$, 95% CI = [0.09, 0.85] (Figure 5). Among participants in the suffering condition, sadism was unassociated with aggressive pleasure, $B = 0.37$, $t(201) = 1.56$, $p = .121$, 95% CI = [–0.10, 0.85]. Yet among participants in the no suffering condition, sadism was negatively associated with aggressive pleasure, $B = -1.51$, $t(201) = -2.31$, $p = .022$, 95% CI = [–2.80, –0.22].

Internal Meta-Analysis

An internal, random-effects meta-analysis across the eight studies' zero-order correlations between sadism and aggressive behavior was performed using JASP v.9.0 (effect sizes [n = 8], study of origin, and corresponding sample sizes are listed in Supplemental Table 20). Study 4 employed five aggression measures and to avoid issues with dependency between the associations, we selected the correlation between sadism and the TAP due to this measure's established validity. Using restricted maximum likelihood estimation, we observed a modest correlation between sadism and aggressive behavior, $r = .20$, $SE = 0.04$, 95% CI = [0.12, 0.29], $Z = 4.70$, $p < .001$ (Figure 6). The effects included in this internal meta-analysis exhibited significant heterogeneity, $Q(7) = 20.05$, $p = .005$. An integrative data analysis (P. J. Curran & Hussong, 2009) replicated this meta-analytic effect and demonstrated that this effect is curvilinear, with the sadism–aggression link becoming less positive at higher levels of sadism (Supplemental Document 1).

Discussion

What makes someone evil? For many, a central feature includes the tendency to cause harm to others for one's own enjoyment. These sadistic impulses do not purely reside in the gray matter of deranged killers, but can be found in the general human populace (Buckels et al., 2013). We sought to contribute to the understanding of such "everyday sadism," testing whether these tendencies could actually be used to predict aggressive behavior. To do so, we examined the robustness of the sadism–aggression link across myriad aggression measures and toward innocent and provocative targets. We also tested two core tenets of the sadism construct, that sadism is associated with subjective pleasure during acts of aggression and that this pleasure is derived from the suffering inflicted on others (Baumeister & Campbell, 1999; Chabrol et al., 2009).

Is Sadism Linked to Aggression?

Across eight studies, participants' self-reported sadism was positively associated with greater administrations of aversive noise blasts, painfully spicy hot sauce, gruesome images, and sharp pins administered to other people. Sadism was also linked to violent acts perpetrated in participants' real-world recent histories. These associations between sadism and aggressive behavior were robust, remaining reliable after

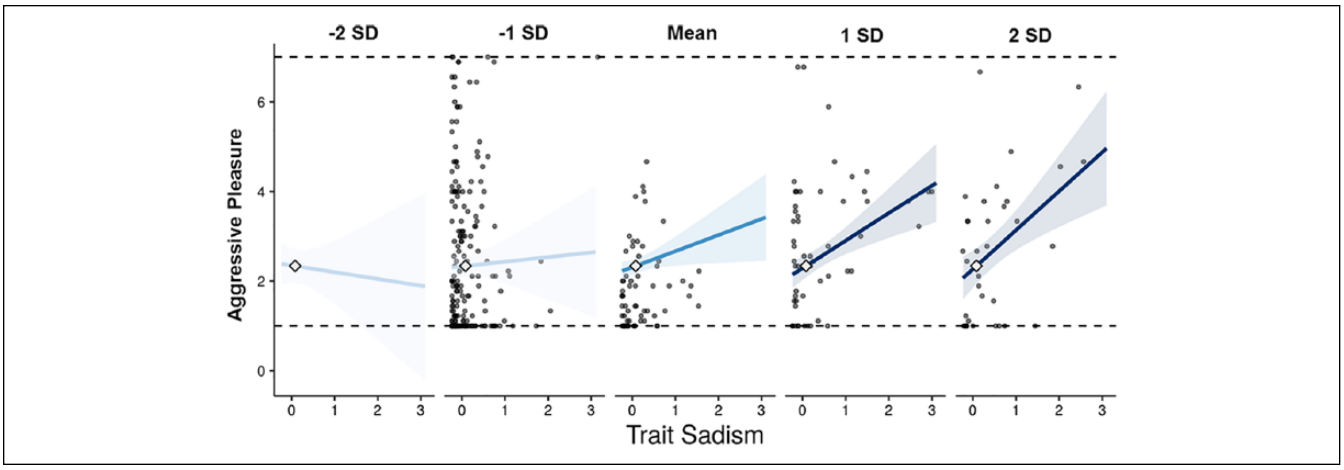

Figure 4. Interactive effect from Study 7 whereby the association between sadism and the aggressive pleasure experienced during aggression is magnified by perceived victim suffering.
Note. Bands around regression lines represent 95% confidence intervals.

Table 8. Sadism's Association With Aggressive Behavior in Study 8, Separated by Measure.

Model	Predictor	β	*t*	*df*	*p*	ΔR^2
1	Sadism	.04	0.50	202	.620	
2	Gender	.06	0.83	201	.405	
	Sadism	.02	0.25	201	.802	.00
3	Victim pain condition	.06	0.84	200	.401	
	Sadism	.04	0.54	200	.588	.00
	Victim Pain Condition × Sadism	−.05	−0.65	200	.519	.00
4	Victim pain condition	.02	0.32	198	.749	
	Machiavellianism	.06	0.66	198	.511	
	Narcissism	.23	3.20	198	.002	
	Psychopathy	.10	1.06	198	.289	
	Sadism	−.07	−0.81	198	.422	.00

Note. Victim pain condition is coded as victim pain = 1, no pain = −1. Gender is coded as male = 1, female = −1.

controlling for poor self-control, impulsivity, trait aggression, and the dark triad of Machiavellianism, Narcissism, and psychopathy. This wealth of evidence replicates and extends upon previous work that highlights the discriminant validity of sadism in its role as a correlate of greater aggressive behavior (e.g., Buckels et al., 2013; Chester & DeWall, 2017, 2018; Reidy et al., 2011). Furthermore, sadism was linked to aggression within both males and females. Given that sadism is higher among males (Buckels et al., 2013), it was important to rule out this possibility. These results support sadism's robust (though modestly sized) effect on aggressive behavior.

Toward Whom Is Sadistic Aggression Directed?

Sadism was associated with both retaliatory aggression toward provocateurs and also toward innocent targets. In two studies, sadistic aggression was more strongly directed at innocent individuals. These findings replicate previous work linking sadism to aggression against innocent individuals (Buckels et al., 2013), provide a novel extension by linking sadism to retaliatory forms of aggression, and suggest that sadistic forms of aggression are largely numb to situational inputs that normally magnify aggression. The inability of these provocations to amplify sadists' aggression suggests a different motivation than revenge, and may be rooted in the anticipated affect surrounding sadistic acts.

Is the Aggressive Behavior of Sadists Linked to the Experience of Pleasure?

Although we initially expected that sadists would experience greater positive affect after an aggressive act (as in Buckels et al., 2013), we routinely observed that sadism was unassociated with such postaggression positive affect. This discrepancy may be due to the fact that the targets of aggression in the studies performed by Buckels and colleagues (2013) were pill bugs and not humans. Conversely, sadism was most often associated with greater *negative* affect after aggression. This association was not simply due to sadists' general tendency to experience greater negative affect, as we statistically controlled for baseline affect. It appears that, while sadists appear to be more aggressive, these aggressive acts seem to have a detrimental impact on their mood. In line with recent research on aggression's perceived emotion-regulating qualities (Chester & DeWall, 2017), sadists may perceive as aggression an effective means to improve their mood, despite its contrary results.

We developed a new self-report measure of aggressive pleasure, which demonstrated that sadism was associated with greater pleasure during the aggressive act. Furthermore, such aggressive pleasure accounted for a significant portion

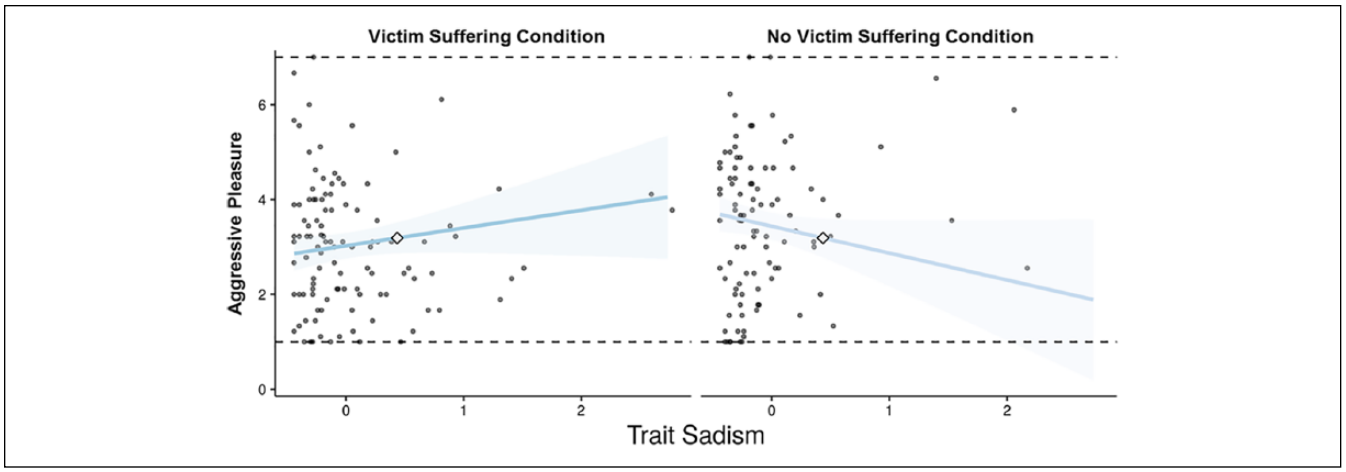

Figure 5. Interactive effect from Study 8 whereby the association between sadism and the aggressive pleasure experienced during aggression is magnified by an experimental manipulation of victim suffering.
Note. Bands around regression lines represent 95% confidence intervals.

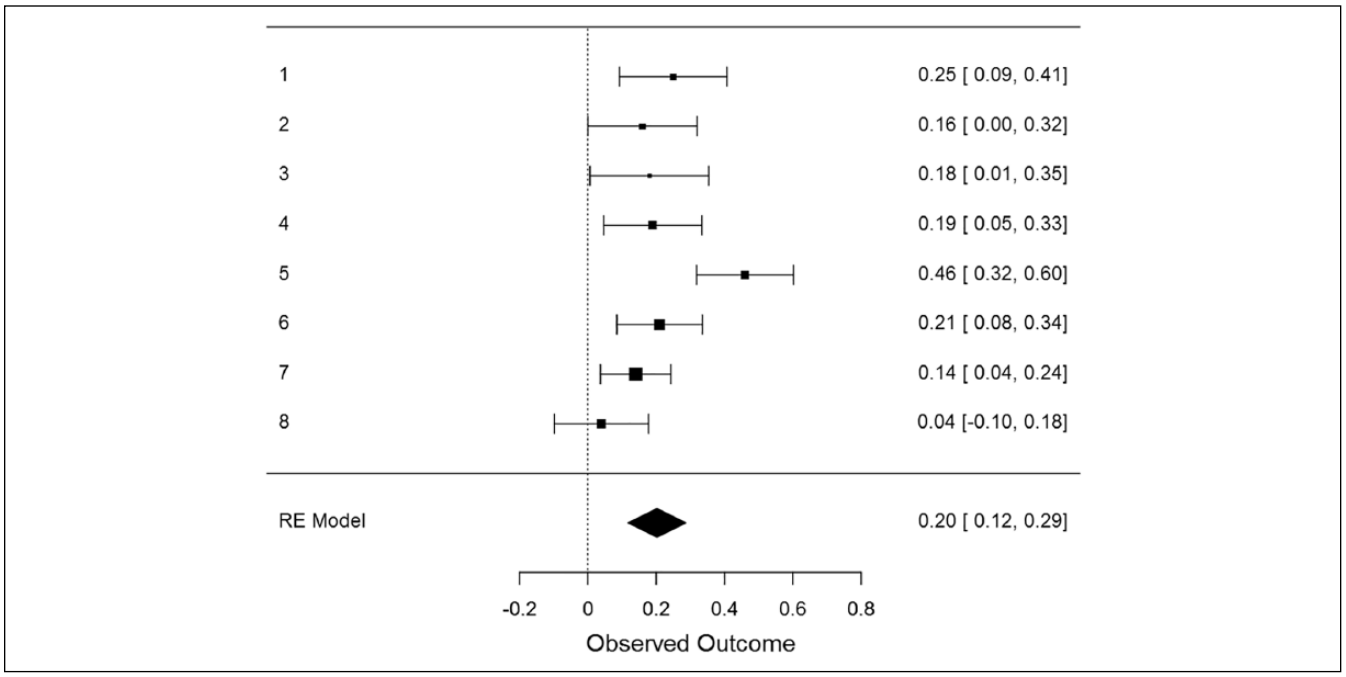

Figure 6. Forest plot of sadism–aggression effects from all eight studies.
Note. Numbers on the left represent the study of origin for each effect and values on the right represent individual effect sizes and their associated 95% confidence intervals.

of the effect of sadism on aggression. Sadism may thus be reinforced by experiences of aggressive pleasure, and this reinforcement may serve as a proximate mechanism by which aggressive and sadistic traits and tendencies are formed and reinforced over time (Chester, Lynam, Milich, & DeWall, 2018). These findings fit within the growing literature that establishes positively valenced affective states as a potent motivator of aggression (Chester, 2017). The findings are also in line with predictions from the General Aggression Model in terms of how personality input variables can increase the likelihood of aggression through affect, appraisal and decision-making processes, and feedback loops (Anderson & Bushman, 2002; DeWall et al., 2011).

Do Sadists Derive Pleasure From Others' Suffering?

By measuring and manipulating how much the victims of participants' aggression were perceived to experience actual suffering, we established that aggressive pleasure is contingent

upon the perceived suffering of sadists' victims. This core feature of sadism has been theorized (Baumeister, 1999; Chabrol et al., 2009), but our studies offer the first definitive evidence. Typically, others' suffering is automatically met with empathic concern and shared distress (Preston & de Waal, 2002), yet sadists display an opposing process in which others' pain is transmuted into their pleasure. More work is needed to understand the precise psychological and biological mechanisms that allow others' pain to be experienced as pleasant.

Limitations and Future Directions

Our assessments of sadism were exclusively explicit and obtained via self-report. Sadism is a socially undesirable trait. As such, participants may have underreported their sadism. Future research may use implicit measures of sadism (Reidy et al., 2011) to outflank this limitation. However, underreporting is only problematic if certain types of individuals differentially underreport sadism, or if certain methodological techniques or contexts elicit differential responding. We observed no evidence of differential underreporting in our data.

Sadism tends to be greater among males than females (Buckels et al., 2013), and our studies were not conducted to explicitly take gender effects into account. Entering gender as a covariate did not fundamentally alter sadism's link to aggression across the majority of our studies, suggesting that our effects were not artifacts of males' greater sadism. However, future research is needed that treats gender as a variable of interest and not a nuisance factor.

Another effect of the self-report approach we took to measuring sadism was that our findings were purely correlational. As such, we cannot be sure of the directionality of our effects or if other variables artificially created them. Such correlations do not allow for the establishment of a temporal or causal sequences of variables and violate many of the assumptions of mediation modeling (see Giner-Sorolla, 2016). Experimental manipulations that increase sadistic states should be developed to allow for causal inferences and directional statements about the sadism–aggression link. Furthermore, longitudinal work that is interrogated with cross-lagged analyses would allow for directional inferences.

In addition to these assessment issues, our findings were obtained with undergraduate and Mechanical Turk participants who are unlikely to exhibit the violent and belligerent behavior of forensically or clinically aggressive individuals or the larger proportion of the global human population for that matter (Henrich, Heine, & Norenzayan, 2010). Undergraduate and Mechanical Turk populations possess characteristics (e.g., wealth, education-level, societal structure) that are not replicated in most of the world. As such, it is crucial for future research to replicate our effects with diverse populations that better approximate the true range of aggressive tendencies in the real world. We also frequently used experimentally manipulated variables as covariates in many of our analyses. The appropriateness of including experimentally manipulated variables, which should already be equivalent across most demographic and trait domains, is debatable and readers should use caution when interpreting the results of such covariate analyses.

Conclusion

What people enjoy varies wildly. Some people enjoy hurting others. We found that these tendencies are not confined to people's heads and bleed into their actions as well. Where people fall along the sadistic spectrum seems to predict how aggressively they act toward others and the pain they inflict promotes a fleeting sense of pleasure that is soon replaced by affective discomfort. It is our hope that shining light on such dark features of personality leads to greater understanding and interventions that manage to break the link between personal pleasure and others' suffering.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Supplemental Material

Supplemental material is available online with this article.

Notes

1. Aggression data from these participants have been reported elsewhere (Chester & Lasko, in press), but not in the context of sadism.
2. Aggression and affect data from these participants have been reported elsewhere (Chester & DeWall, 2017), but not in the context of sadism.

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