

Running head: SADISM AND

**Sadism is a Lower-Order Facet of Schadenfreude**

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**Abstract**

Sadism represents a predisposition towards enjoying the suffering that we cause others. However, this conceptualization of Sadism closely abuts that of schadenfreude—the tendency to find pleasure in others' suffering. The relationship between trait Sadism and trait schadenfreude has gone understudied. Using latent construct modeling with a cross-sectional and diverse sample of 322 undergraduate participants, we found that the bi-factor model of Sadism and schadenfreude that best fit the data articulated Sadism as a sub-facet of schadenfreude. Sadism was more strongly related to physical aggressiveness, anger, and antagonism than schadenfreude, suggesting a distinct nomological profile. Future research should seek to identify the mechanisms that translate a passive, schadenfreudic disposition into actual acts of Sadistic aggression.

Keywords: Sadism, schadenfreude, personality, bi-factor modeling

### **Sadism is a Lower-Order Facet of Schadenfreude**

*Pleasure is sweetest when 'tis paid for by another's pain. – Ovid*

Sadism reflects the tendency for some people to enjoy the harm that they inflict upon others (Foulkes, 2019). Research into this topic has resulted in significant progress but also some inconsistency in the conceptualization of what traits are and are not central to Sadism. The present study combined a novel factor analytic approach with bi-factor models to bring clarity to this literature by empirically examining (I) whether dominance-seeking and callous-unempathic responding belong in the core Sadism construct, (II) whether vicarious Sadism is redundant with schadenfreude, and (III) whether Sadism is a lower-order facet of schadenfreude.

#### **Sadistic Personality**

Sadism, first conceptualized as a form of psychopathology and criminal behavior outlined in the Diagnostic and Statistical Manual of Mental Disorders revised third edition (American Psychiatric Association, 1987), was once considered a purely sexual phenomena (i.e., sexual Sadism), and indeed its very name comes from Marquis de Sade, who wrote sexually explicit fiction depicting extreme violence and suffering. Modern conceptualizations of Sadism, however, have broadened the definition to “the deliberate infliction of pain for the sake of enjoyment” (Nell, 2006, p. 227). Sadism was previously considered a psychiatric disorder, and Sadistic personality disorder was included in the revised third edition of the diagnostic and statistical manual of mental

disorders (American Psychiatric Association, 1987). However, more recently researchers have conceptualized Sadism as a broader personality trait, and have demonstrated the existence of sub-clinical, so-called “everyday,” Sadism that exists within the broader population (e.g., Buckels et al., 2013; Paulhus & Dutton, 2016).

Sadism is of key interest to researchers, clinicians, policy-makers, and the American legal system, as it shows some of the strongest relationships among personality traits with acts of aggression (Chester et al., 2019). The relationship between Sadism and aggression depends upon the perceived suffering of target. Greater perceived harm then leads to greater pleasure derived from the act (Chester et al., 2019).

At its core, Sadism represents a predisposition towards enjoying the suffering of others. However, other conceptual approaches to Sadism expand this construct to include other psychological traits and tendencies. Specifically, the Assessment of Sadistic Personality (Plouffe et al., 2017) includes domination (i.e., a disposition towards seeking power over others) and callousness (i.e., an unemotional disposition towards the feelings of others) facets of Sadism within its model of Sadism. Sadistic individuals may indeed also be predisposed towards dominating others and having a callous response to others’ suffering. However, it remains unseen whether these constructs are inherent aspects of the Sadism construct or if they are correlated but ultimately distinct traits.

Other conceptualizations of Sadism (e.g., those manifested in the Comprehensive Assessment of Sadistic Tendencies; Buckels & Paulhus, 2013) include separate constructs describing the direct inclination to cause harm for enjoyment (i.e.,

direct sadism) and the passive enjoyment of the suffering of others while not inflicting the harm directly (i.e., vicarious sadism). Though such vicarious Sadism is put forth in this model as a core facet of Sadism, it may also be closely related to—if not directly redundant with—the construct of *schadenfreude*.

### **Sadism and Schadenfreude**

Schadenfreude reflects the pleasure people experience from the suffering of others (Van Dijk et al., 2011) and has been compared to Sadism in the past. Trait Sadism has been previously linked to greater momentary experiences of *schadenfreude* (Lee, 2019; Schumpe & Lafrenière, 2016). However, the relationship between *schadenfreude* and Sadism as personality traits remains understudied. At a *prima facie* level, there is clear overlap between Sadism and *schadenfreude*—both involving joy derived from other's suffering. Indeed, there may be grounds to claim that these may have a nested relationship rather than a mere correlational one. Sadism, as a trait, may be nested under a broader disposition towards *schadenfreude*.

Schadenfreude has also been conceptualized as a context-specific response to a situation. Individuals are likely to experience *schadenfreude* when they have some instrumental or emotional gain from the victim's suffering (e.g., positive self-esteem from downward comparison), when the other deserves their harm, or when individual envies the victim (e.g., Smith et al., 1996; Smith et al., 2009; Wang et al., 2019). These conditions are not necessarily unique to *schadenfreude* as individuals high in Sadism are still likely to receive pleasure from these same scenarios. However, most definitions of Sadism emphasize that the pleasure that a Sadistic individual gains from harm is an end unto itself, and does not rely on situational context (e.g., Chester et al., 2019). This

non-contextual “harm for the sake of harm” may differentiate schadenfreude from Sadistic pleasure and propel Sadistic individuals to directly cause the harm they enjoy. Furthermore, the influence of these situational factors does not preclude stable dispositions towards experiencing schadenfreude. Schadenfreude, like all affective states occurs both momentarily and dispositionally. Indeed, there is clear evidence for trait schadenfreude. Crysel and Webster (2018) developed and validated a measure of stable dispositions towards experiencing schadenfreude. This scale showed adequate test-retest reliability and stability over time, clearly indicating that individuals have a stable disposition towards or away from experiencing schadenfreude. This measure of trait schadenfreude was positively correlated with Machiavellianism, psychopathy, Narcissism, physical aggression, anger and hostility. However, the relationship between trait schadenfreude and trait Sadism remains empirically unexamined.

The key distinction between schadenfreude and Sadism may lie in the tendency to passively experience the suffering of another versus the tendency to be actively involved in causing that suffering. Indeed, Sadism inherently entails the active perpetration of harm (Chester et al., 2019), whereas schadenfreude does not. Whereas individuals high in schadenfreude may enjoy passively watching someone slip on a banana peel, Sadistic individuals may only enjoy this person’s suffering if they were the one who actively placed the banana peel in the path of their hapless victim. But this distinction does not entail that schadenfreude and Sadism are inherently alienated from one another. Instead, they may still share an intimate conceptual connection. It may be that Sadism is best defined as an *active form* of schadenfreude.

### **Present Study**

The first aim of the present study was to empirically examine the conceptual core of Sadism.<sup>1</sup> More specifically, we used a novel latent construct modeling technique to examine Sadism's relation to its more peripheral facets: dominance, callousness, and vicarious Sadism.

Our preregistered hypotheses were as follows:

*H1: Including Sadistic subjugation with dominance will show better model fit compared to including Sadistic subjugation items with Sadism.*

*H2: Including Sadistic callousness with callousness will show better model fit compared to including Sadistic callousness with Sadism.*

*H3: Including vicarious Sadism items with schadenfreude will show better model fit compared to including vicarious Sadism items with Sadism items.*

The second aim of the present study was to clarify the relationship between Sadism and schadenfreude, specifically investigating if these constructs were empirically redundant, or if they might be nested within one another. We predicted that:

*H4: The bi-factor model including Sadism and schadenfreude as a general factor and Sadism as a lower-order facet factor should show the best fit, suggesting that trait Sadism can be considered a lower-order facet of trait schadenfreude.*

Finally, we aimed to clarify the nomological networks of Sadism and schadenfreude, we also conducted and compared their bivariate correlations with several theoretically-relevant personality constructs, including the Big 5 personality dimensions, aggression, behavioral approach and inhibition, and a tendency towards

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<sup>1</sup> The preregistered plan for data collection, preprocessing, and analysis, as well as the deidentified dataset, and code for this study can be found at <https://osf.io/jdh8t/>. This preregistration was registered prior to data collection.

holding contradictory responses with others' emotions (i.e., affective dissonance). We did not have specific predictions concerning these correlations.

## Method

### Statistical Power Statement

Sample size was derived via a power analysis using the *semPower* package in R version 1.2.0 (Moshagen, 2021) for a S-1 bi-factor model (i.e., model 6) with an expected *RMSEA* of .07,  $\alpha = .05$ , and 80% power. Due to the large number of items in each scale of the intended model, we preregistered using the 16 component subscales as indicators instead of raw items. This power analysis suggested a minimum of 219 participants. In order to add account for a possibly inflated effect size in our power analysis and to ensure sufficient power, we over-recruited to 322 participants. This decision was made prior to accessing any data.

### Participants

Participants consisted of 322 undergraduates from a large southeastern university in the United States. Demographic information for the sample can be found in Table 1.

*Table 1. Sample demographic information*

Demographic information	<i>M</i>	<i>SD</i>	Range
Age	19.80	2.86	18-42
Race	Percentage		
White	38.89%		
Asian	21.91%		
Black	18.32%		
Non-white Hispanic/Latinx	6.17%		
Middle-Easter/Arabic	4.94%		
Native American	0.93%		
Pacific Islander/Native Hawaiian	0.62%		
"Other racial identity"	5.56%		



Did not disclose	2.66%
Gender identity	Percentage
Cisgender women	65.74%
Cisgender men	22.53%
Non-binary/other gender identity	3.09%
Prefer to self-describe	2.16%
Transgender women	0.62%
Transgender men	0.31%
Did not disclose	5.55%

## Materials

### *Sadism Scales*

**Assessment of Sadistic Personality (ASP; Plouffe et al., 2017).** The ASP is a nine-item scale assessing trait Sadism consisting of three subscales: *subjugation* (three items; e.g., “I never get tired of pushing people around”), *pleasure-seeking* (four items; e.g., “When I mock someone, it is funny to see them get upset), and *unempathic* (two items; e.g., “I think about hurting people who irritate me”). Participants were asked to rate the degree to which they agree or disagree with each statement on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

**Short Sadistic Impulse Scale (SSIS; O’Meara et al., 2011).** The SSIS is a item scale of dispositional Sadism (e.g., “I would enjoy hurting someone physically, sexually, or emotionally”). Participants were asked to rate the degree to which they agree or disagree with each statement on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

**Comprehensive Assessment of Sadistic Tendencies (CAST; Buckles & Paulhus, 2014).** The CAST is a measure of trait Sadism, and is comprised of three subscales, two measuring direct Sadism: *verbal* (six items; e.g., “I have purposely

tricked someone and laughed when they looked foolish”) and *physical* (five items; e.g., “I enjoy physically hurting people”) and one subscale measuring *vicarious* Sadism (seven items; e.g., “In video games, I like the realistic blood spurts”). Participants were asked to rate the degree to which they agree with each statement on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

### **Secondary Construct Scales**

**Computerized Adaptive Test of Personality Disorder (CAT-PD; Simms et al., 2011).** The CAT-PD is a measure of personality disorders based on the Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM-V). It contains 33 subscales, but only the *domineering* subscale (six items; e.g., “I like having authority over others.”) and *callousness* (seven items; e.g., “I do not care how my actions affect others.”) were used in the present study. Participants were asked to respond to each item on a scale from 1 (*Very untrue of me*) to 5 (*Very true of me*).

**Trait Schadenfreude Scale (Crysel & Webster, 2018).** The Crysel and Webster (2018) Schadenfreude Scale measures trait dispositions towards experiencing pleasure from viewing others’ pain. This scale contains two theoretically-derived subscales of *benign* schadenfreude, in which the harm done to the target was minimal (six items; e.g. “I have laughed at someone who has fallen before helping them up”), and *malicious* schadenfreude, in which serious harm to the target occurred (six items; e.g. “I like to see someone successful get fired”). Participants were asked to rate the degree to which they agree or disagree with each statement on a scale from 1 (*Strongly disagree*) to 9 (*Strongly agree*).

### **Discriminant Validity Scales**

**Affective and Cognitive Measure of Empathy (ACME; Vachon & Lynam, 2016).** The ACME is a 36-item self-report measure of empathy that includes 3 subscales, however, only the 12-item *affective dissonance* (e.g., “I get a kick out of making other people feel stupid”) was used in the present study. Participants were asked to rate the degree to which they agree or disagree with each statement on a scale from 1 (*Disagree strongly*) to 5 (*Agree strongly*).

**Behavioral inhibition system/Behavioral activation system Scale (BIS/BAS; Carver & White, 1994).** The BIS/BAS scale was designed to measure individual sensitivities to two affective/behavioral motivation systems, the behavioral inhibition system (BIS; i.e., regulation of aversive motivations) and the behavioral activation systems (BAS; i.e., regulation of appetitive motivations). The BIS/BAS consists of four subscales: *BAS drive* (four items; e.g., “

**Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992).** The BPAQ is one of the most widely used trait aggression questionnaires among non-clinical populations. It is comprised of four subscales: *physical aggression* (nine items; e.g., “once in a while I can’t control the urge to strike another person”), *verbal aggression* (five items; e.g., “I can’t help getting into arguments when people disagree with me”),

*anger* (seven items; e.g., “I have trouble controlling my temper”), and *hostility* (eight items; “I know that ‘friends’ talk about me behind my back”). Participants were asked to respond to each item from 1 (*Extremely uncharacteristic of me*) to 5 (*Extremely characteristic of me*).

**International Personality Item Pool NEO-60 (IPIP-NEO-60; Goldberg, 1999; Goldberg et al., 2006).** The IPIP NEO-60 is a 60-item scale measuring the Big Five model of personality traits: agreeableness (e.g., “I sympathize with the homeless”), conscientiousness (e.g., “I like order”), extraversion (e.g., “I love large parties”), neuroticism (e.g., “I get irritated easily.”), and openness to experience (e.g., “I prefer variety to routine”). Participants were asked to rate the degree to which they agree or disagree with each statement on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

### **Procedure**

Participants were recruited through a university participant pool system. After signing up for the study through the system, they were directed to an online Qualtrics survey. After consenting, participants were asked to complete the study questionnaires in a random order, randomized by Qualtrics, in order to reduce possible order effects. They then read a full debriefing form through the online survey describing the purpose of the study, the initial withholding of hypotheses, and were referred to the first and second authors if they had any questions or concerns.

### **Data Analytic Strategy**

#### ***Data Preparation***

In accordance with our preregistration, missing data were replaced with multiple imputation predictive mean metric using the *mice* package version 45i03 (van Buuren & Groothuis-Oudshoorn, 2011) in R version 4.0.5 (R Core Team, 2021). We then created indices for each applicable Sadism and schadenfreude subscale (e.g., benign schadenfreude, physical Sadism) for use as indicators within our latent models by converting all individual item scores into Z-scores and then averaging appropriate items together. All subsequent analyses were performed with R version 4.0.5 (R Core Team, 2021), including the *lavaan* package version 0.6-11 (Rosseel, 2012).

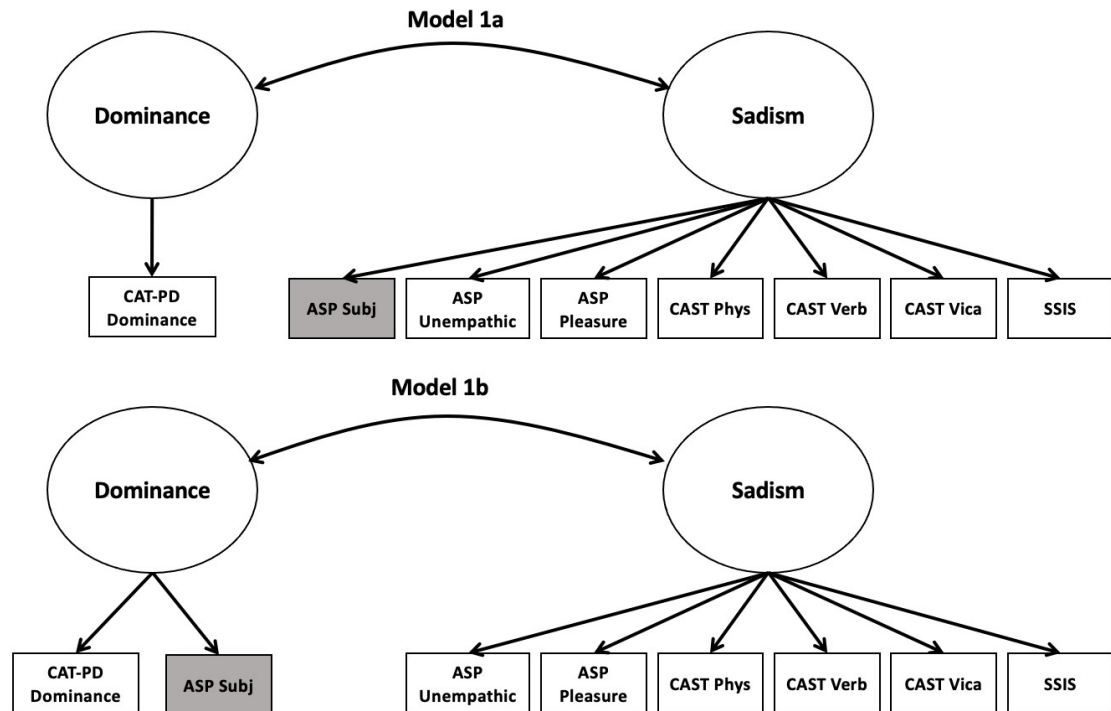
### ***“Dance Partner” Construct Modeling***

Several facets of Sadism, which conceptually extend past the core feature of Sadistic pleasure, have been put forth (i.e., subjugation or dominance, unempathicness or callousness, and vicarious Sadism). However, these traits may not necessarily be intrinsic parts of Sadism. We applied a novel factor analytic approach to empirically estimate whether these peripheral traits truly belong within the Sadism construct or not—a technique we term “dance partner modeling.”

We conducted three sets of latent variable analyses (please see Figure 1 for a conceptual example diagram; Models 1-3). Within each of the three sets were two models that modeled the same two latent factors. The first latent factor was labeled Sadism and was indicated by all available Sadism subscales. The second latent factor changed for each set of models, reflected the given construct of interest (e.g., dominance), and was indicated by a measure of that construct of interest (e.g., the Dominance subscale of the CAT-PD). The first model within each set modeled the construct of interest’s (e.g., dominance) corresponding Sadism subscale (e.g., ASP

subjugation) as an indicator for the Sadism factor. The second model within each set modeled the construct of interest's (e.g., dominance) corresponding Sadism subscale (e.g., ASP subjugation) as an indicator for the factor that reflected the construct-interest (e.g., dominance). These models used maximum likelihood estimation and set the loading of the first indicator for each factor to one, in order to set the scale of each latent factor. Error terms were left uncorrelated and latent factors were allowed to correlate. In accordance with our preregistration plan, we inferred that a model had superior fit to another model if the  $\chi^2$  difference test was statistically significant and the comparative fit index (CFI) increased by at least .02.

*Figure 1. Example conceptual diagram of Dance Partner Modeling technique*



*Note: CAST = Comprehensive Assessment of Sadistic Tendencies, SSIS = Short Sadistic Impulse Scale, ASP = Assessment of Sadistic Personalities, CAT-PD Computerized Adaptive Test of Personality Disorder. Subj = Subjugation, Pleasure = Pleasure-seeking, Phys = Physical, Verb = Verbal, Vica = Vicarious.*

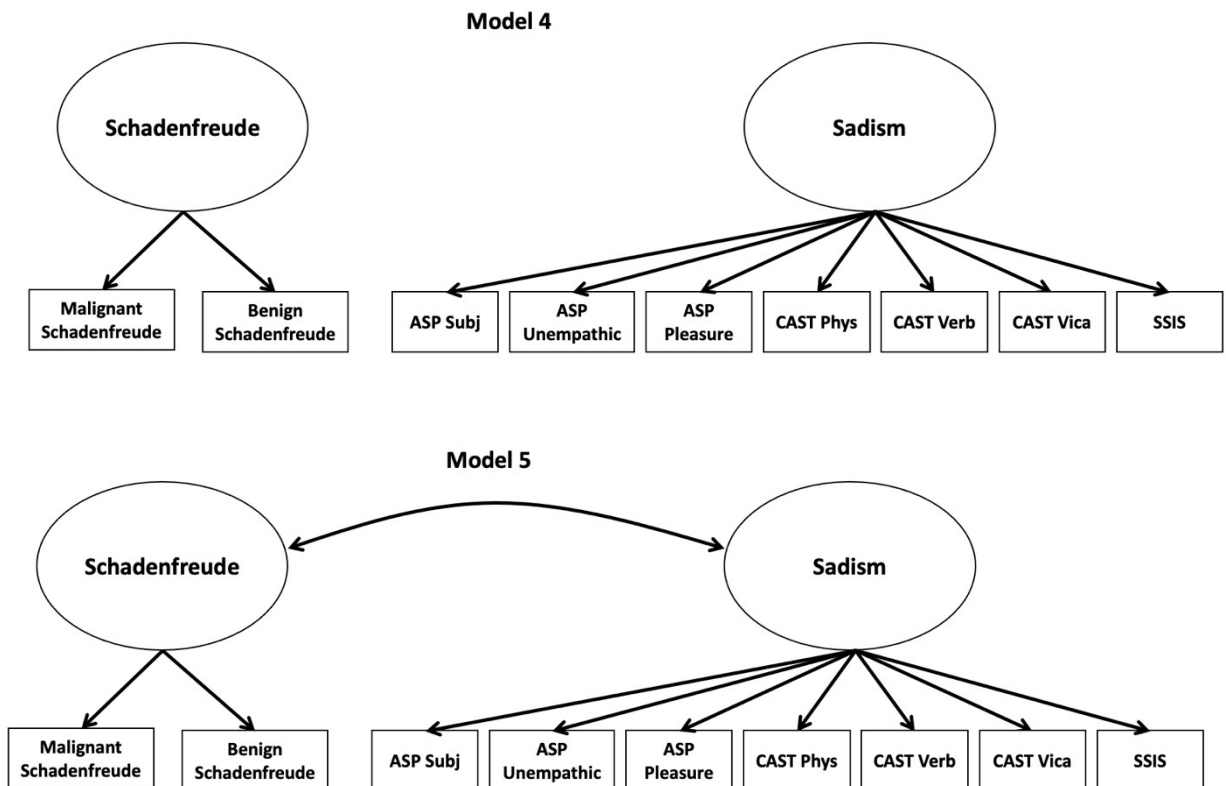
By comparing model fit between two competing models, we can examine if (for example) subjugation is a “better dancer” when it is partnered with Sadism or when it’s partnered with items from a similar construct (i.e., dominance). If model fit is better when Sadistic subjugation items are loaded onto a dominance factor rather than a Sadism factor, it implies that dominance is not an inherent part of Sadism, and should thus be excluded from the Sadism construct and measures thereof.

### ***Bi-factor Models***

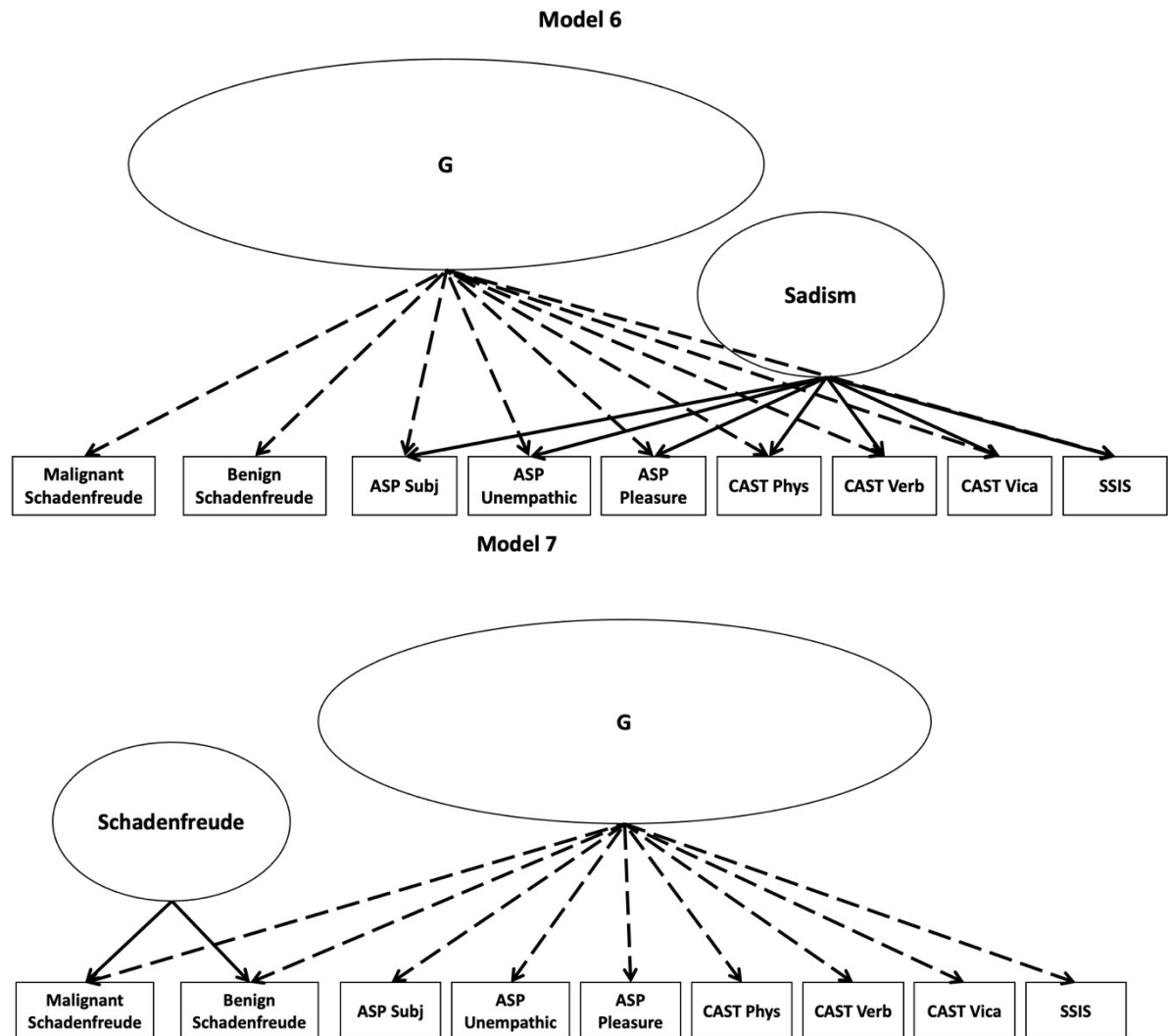
Bi-factor models are useful for testing hypotheses that one construct is subsumed under another. By separating the variance into a general effect (G) and a number of lower-order specific effects, we can understand nested relationships of constructs. However, commonly used symmetrical bi-factor models may be biased towards the bi-factor model, favoring it over competing models (Bonifay et al., 2017). Other studies have shown that symmetrical bi-factor models often produce impossible or unusual results such as small or negative factor variances (Heinrich et al., 2020). Instead, S-1 bi-factor models, which sets one of the specific factors as a reference factor compared to the other specific factors, have been shown to reduce this bias and produce more easily interpretable results (e.g., Heinrich et al., 2020). We used S-1 factor modeling to examine if Sadism is a facet of schadenfreude. In order to do this, we constructed four different models (Models 4-7; Figure 2). Models 4 and 5 were set as baseline models, showing Sadism and schadenfreude as orthogonal or correlated factors, respectively. We then test two empirical S-1 bi-factor models. Model 6 tested our hypothesis that Sadism can be understood as a facet of schadenfreude, including all facets of schadenfreude and Sadism in the overall G factor, and Sadism alone in the

specific factor. Finally, Model 7 tested an alternative hypothesis that schadenfreude is a facet of Sadism, including all facets of schadenfreude and Sadism in the overall G factor and schadenfreude alone in the specific factor. In accordance with our preregistration plan, we inferred that a model had superior fit to another model if the  $\chi^2$  difference test was statistically significant and the comparative fit index (CFI) was larger by at least .02.

*Figure 2. Conceptual diagrams of bi-factor models used for models 4, 5, 6, and 7.*







*Note: CAST = Comprehensive Assessment of Sadistic Tendencies, SSIS = Short Sadistic Impulse Scale, ASP = Assessment of Sadistic Personalities, CAT-PD Computerized Adaptive Test of Personality Disorder. Subj = Subjugation, Pleasure = Pleasure-seeking, Phys = Physical, Verb = Verbal, Vica = Vicarious.*

### ***Discriminant Validity***

Finally, we conducted bivariate correlations between Sadism and schadenfreude and several antagonistic traits. In order to compare Sadism and schadenfreude, we created a composite Sadism index by standardizing scores from the CAST, SSIS, and ASP into z-scores, then averaging those scores. We further used the overall Crysel and Webster (2018) Schadenfreude scale, rather than the benign and malicious subscales

separately. We used Fisher's  $r$ -to- $Z$  transformation to then test the difference in strength between these correlation coefficients in order to get a better sense of discriminant validity.

## Results

Descriptive statistics and reliability for model indicators can be found in Table 3 and model fit parameters can be found in Table 4. Although our preregistration specified that we would use the component subscales of each measure as our model parameters, we were unable to establish adequate fit for any model using this subscale-level approach ( $RMSEAs > .10$ ). Thus, we deviated from our preregistered plan and used individual items instead of subscales as indicators for each latent factor. Full factor loadings and residual variances for each item from each model can be found in supplemental materials (S1).

*Table 3. Descriptive statistics for model parameter scales.*

Variable	Min	Max	Mean	Std. Dev	Skew	Kurtosis	$\alpha$
CAST Physical	1.00	5.40	1.62	0.87	1.77	2.83	0.74
CAST Verbal	1.00	6.17	2.43	1.20	0.63	-0.47	0.76
CAST Vicarious	1.00	6.71	2.50	0.98	1.05	1.04	0.73
SSIS	1.00	3.67	1.40	1.55	1.80	4.09	0.83
ASP							
seeking	1.00	4.25	1.59	0.71	1.26	0.90	0.75
ASP Unempathic	1.00	5.00	2.18	1.07	0.50	-0.67	0.36
ASP Subjugation	2.67	5.67	3.02	0.61	2.18	4.55	0.73
Benign							
schadenfreude	1.00	9.00	3.76	1.87	0.44	-0.39	0.81
Malicious							
schadenfreude	1.00	6.50	1.72	1.01	1.79	3.13	0.81
CAT-PD							
Dominance	1.00	4.67	1.83	0.76	0.84	0.21	0.85
CAT-PD							
Callousness	1.00	3.86	1.95	0.49	1.10	0.96	0.66

*Note: CAST = Comprehensive Assessment of Sadistic Tendencies, SSIS = Short Sadistic Impulse Scale, ASP = Assessment of Sadistic Personalities, CAT-PD Computerized Adaptive Test of Personality Disorder*

## **Hierarchical Construct Models**

### ***Model 1: Dominance and Sadistic Subjugation.***

Our first model examined whether model fit was better when ASP subjugation was included with Sadism (Model 1a) measures or with another dominance measure (Model 1b). Both Model 1a and Model 1b showed adequate fit by *RMSEA* but not by *CFI*. Due to the same degrees of freedom, we were unable to interpret the  $\chi^2$  difference test, however, the difference in *CFI* between exceeded our established threshold, with greater *CFI* in Model 1a than Model 1b. Thus, model fit was better when Sadistic subjugation was included with Sadism than when paired with dominance.

### ***Model 2: Callousness and Sadistic Unempathicness.***

Our second model compared model fit when ASP unempathicness was included with other Sadism items (Model 2a) and when it is included with other callousness items (Model 2b). Model 2a and Model 2b had adequate fit by *RMSEA* but not by *CFI*. Due to the same degrees of freedom in each model, we were unable to interpret the  $\chi^2$  difference test. However, the difference in *CFI* between exceeded our established threshold, with greater *CFI* in Model 2a than Model 2b. This suggests that unempathicness is better when paired with Sadism than when paired with callousness.

### ***Model 3: Schadenfreude and Vicarious Sadism.***

Our third model compared model fit when CAST vicarious Sadism was included with other Sadism items (Model 3a) and when it is included with trait schadenfreude (Model 3b). Model 3a and Model 3b both adequate fit by *RMSEA* but not by *CFI*. Due to

the degrees of freedom being equal in each model, we were unable to calculate a chi-square difference test. In addition, the difference in CFI between models did not exceed our threshold, suggesting that vicarious Sadism is just as good when paired with Sadism as it is when paired with schadenfreude.

### **Bi-Factor Models**

The relationship between trait Sadism and schadenfreude has gone understudied, and may be deeper than previously suggested. It may be that Sadism and schadenfreude are not merely correlated, but represent a nested hierarchical structure. That is to say, trait Sadism is a facet under a broader umbrella of schadenfreude that captures not only a tendency towards enjoying the pain of others, but an inclination to directly cause it. Our bi-factor models investigated this.

Our first baseline model (Model 4)—setting Sadism and schadenfreude as orthogonal—had adequate by *RMSEA* but not by *CFI*. Our second baseline model (Model 5)—setting Sadism and schadenfreude as correlated but separate constructs—showed adequate by *RMSEA* but not by *CFI*. Model 5 showed improved fit over Model 4,  $\chi^2$  difference (1) = 211.89,  $p < .001$ . This was expected, as other research has shown that individuals high in trait Sadism are more likely to experience schadenfreude (e.g., Schumpe & Lafrenière, 2016). Model 6, setting Sadism as a facet of schadenfreude, showed adequate fit by *RMSEA* but not by *CFI*, as did Model 7, setting schadenfreude as a facet of Sadism. Most important for our hypothesis, Model 6 had significantly better fit compared to Model 4,  $\chi^2$  difference (33) = 356.06,  $p < .001$ , Model 5,  $\chi^2$  difference (32) = 144.17,  $p < .001$ , and Model 7,  $\chi^2$  difference (21) = 65.29,  $p < .001$ . Model 7 showed significantly better fit compared to Model 4,  $\chi^2$  difference (12) = 290.76,  $p < .001$ .

.001, and Model 5,  $\chi^2$  difference (11) = 78.88,  $p < .001$ . These results suggest that Sadism is best considered as a facet of trait schadenfreude.

*Table 4. Summary of model fit parameters for dance partner models and bi-factor models*

Models	$\chi^2(df)$	$p$	RMSEA (90% CI)	CFI	Latent inter-factor correlations
<b>Dance Partner Models</b>					
<b>Model 1</b>					
Model 1a	2471.63 (818)	<.001	.08 (.08, .08)	.72	.59
Model 1b	2696.17 (818)	<.001	.09 (.08, .09)	.68	.75
<b>Model 2</b>					
Model 2a	2137.66 (739)	<.001	.08 (.07, .08)	.72	-.54
Model 2b	2230.10 (739)	<.001	.08 (.08, .08)	.70	-.60
<b>Model 3</b>					
Model 3a	2847.13 (944)	<.001	.08 (.08, .08)	.69	.78
Model 3b	2857.42 (944)	<.001	.08 (.08, .08)	.69	.81
<b>Bi-factor Models</b>					
Model 4	3059.01 (945)	<.001	.08 (.08, .09)	.65	.00
Model 5	2847.13 (944)	<.001	.08 (.08, .08)	.69	.78
Model 6	2702.96 (912)	<.001	.08 (.08, .08)	.71	.00
Model 7	2768.25 (933)	<.001	.08 (.08, .08)	.70	.00

### Discriminant Validity

Reliability and descriptive statistics for discriminant validity measures can be found in Table 5 and bivariate correlations between schadenfreude, Sadism, and our discriminant validity measures can be found in Table 6.

*Table 5. Descriptive statistics for discriminant validity scales.*

Scale	Min	Max	Mean	Std. Dev	Skew	Kurtosis	$\alpha$
Affective dissonance	1.00	3.92	1.53	0.65	1.52	1.69	0.90
Agreeableness	2.42	4.92	3.84	0.54	-0.32	-0.55	0.72
Anger	1.14	7.57	3.33	1.20	0.80	-0.02	0.57
BAS Drive	1.00	4.00	2.26	0.57	0.03	-0.18	0.73
BAS Fun-seeking	1.00	3.75	1.96	0.55	0.16	-0.41	0.64

BAS Reward responsiveness	1.00	3.40	1.54	0.47	0.97	1.04	0.76
BIS	1.00	3.29	1.83	0.47	0.32	-0.36	0.71
Conscientiousness	1.75	5.00	3.71	0.61	-0.38	-0.19	0.81
Extraversion	1.50	5.00	3.47	0.64	-0.32	0.25	0.80
Hostility	1.00	7.00	3.60	1.27	0.06	-0.47	0.81
Neuroticism	1.50	4.67	3.11	0.64	-0.14	-0.42	0.77
Openness	2.08	4.42	3.34	0.39	-0.16	0.09	0.68
Physical aggression	1.00	7.00	2.73	1.16	0.65	-0.02	0.82
Sadism aggregate	-0.59	2.00	0.00	0.59	1.42	1.47	0.93
Verbal aggression	1.00	7.00	3.37	1.26	0.30	-0.25	0.74

*BAS = Behavioral Activation System, BIS = Behavioral Inhibition System.*

Both Sadism and schadenfreude fit within a common antisocial nomological network: both were positively correlated with affective dissonance—a predisposition towards experiencing the opposite emotional and psychological states as others (e.g., pleasure from another’s pain and pain from another’s pleasure)—and all facets of trait aggression, and negatively correlated with agreeableness and conscientiousness. However, schadenfreude and Sadism diverged on several traits. Sadism was more strongly correlated than schadenfreude with physical aggression, trait anger, agreeableness, BAS reward responsivity, and BIS. In addition, schadenfreude was significantly correlated with neuroticism, while Sadism was not, although this difference was not significant. This pattern of correlations suggests that Sadism can be differentiated from its broader construct of schadenfreude by inclinations towards direct aggression, greater anger, lower agreeableness, responsiveness towards rewards, and an ability to inhibit behavior.

*Table 6. Bivariate correlations between Sadism, schadenfreude, and discriminant validity scales.*

Scale	Sadism aggregate	Schadenfreude total	Z-score comparison
Sadism aggregate	1.00	.65***	
Affective dissonance	.75***	.75***	0.00
Agreeableness	-.58***	-.36***	5.45***
Anger	.43***	.25***	4.10***
BAS Drive	-.04	.03	-1.48
BAS Fun-seeking	-.07	-.08	0.21
BAS Reward responsiveness	.15***	.02	2.76**
BIS	.22***	.05	3.63***
Conscientiousness	-.26***	-.19***	1.52
Extraversion	.01	-.02	0.63
Hostility	.41***	.40***	0.24
Neuroticism	.10	.16**	-1.28
Openness	.04	.06	-0.42
Physical aggression	.57***	.33***	5.87***
Verbal aggression	.42***	.35***	1.63

*Note: \*\*  $p < .01$ , \*\*\*  $p < .001$ ; BAS = Behavioral Activation System, BIS = Behavioral Inhibition System.*

## Discussion

The current project attempted to investigate the relationship between Sadism and schadenfreude, as well as to clarify whether three facets of Sadism truly belonged in the core of Sadistic personality. Given Sadism's strong relations to real-world aggression (Chester et al., 2019), it is of critical importance to understand its nomological network of Sadism. By identifying Sadism as a facet of schadenfreude, future interventions may be able to address when the passive enjoyment of harm propels the future perpetration of aggression.

## The Structure of Sadism

Our attempts to tease apart the callous, dominant, and vicarious facets of sadism via dance partner modeling were unsuccessful. Against our predictions, it appears that these three ingredients are required in the recipe for the broad Sadism construct. The disposition towards enjoying the suffering of others would also include the enjoyment of dominating others. In order to overcome the natural empathic reaction to another person being harmed, individuals high in Sadism would need to be callous to their victim's suffering. This supports the inclusion of these constructs in further Sadism studies. Furthermore, it is natural that an individual who enjoys harming others would experience a similar degree of joy from passively seeing others harmed. However, contrary to our predictions, vicarious Sadism was not redundant with schadenfreude. This is somewhat surprising given our further findings that Sadism is a facet of schadenfreude. It may be that the specific facet of vicarious sadism captured by the CAST is qualitatively different from that captured by the schadenfreude scale.

### **The Relationship Between Sadism and Schadenfreude**

In line with our predictions, our findings imply that Sadism can best be considered as a facet of a broader schadenfreude. These results may help distinguish trait schadenfreude as more passive—experiencing joy from others pain but not necessarily being the cause of it—as opposed to more direct Sadism—enjoying actively harming others, as others have suggested (e.g., Ben-Ze'ev, 2014). Indeed, although both Sadism and schadenfreude were positively correlated with trait aggression, Sadism was more strongly correlated with physical aggression and anger than schadenfreude was, suggesting that it is Sadism that propels direct aggression. This



was further supported by Sadism's correlation with

From the above research, it is clear that Sadism is a facet of *trait schadenfreude*. To put it another way, Sadism is a disposition towards experiencing a certain kind of *schadenfreude*. However, Sadism does not fit into any of the pre-existing perspectives of *schadenfreude*. Within the body of scientific literature, there are three broad perspectives of why and when *schadenfreude* occurs: justice (e.g., Berndsen & Tiggemann, 2020), envy (e.g., Van Dijk et al., 2015), and group identity (e.g., Combs et al., 2009). Although some have found that Sadism is linked to malicious envy (e.g., Dinic & Brankovic, 2022) and dominance is a part of Sadism (e.g., Plouffe et al., 2017), the Sadistic enjoyment of harm is not contingent on envying the target, nor is the ultimate goal of the harm dominance over another—but rather the pure hedonism gained through aggression. Thus, new conceptualizations of *schadenfreude* are needed to unify these constructs.

Sadism is arguably the most malevolent personality trait studied within psychology, showing the strongest links to aggression (e.g., Chester et al., 2019), and is of critical importance to understand. The present study suggested that Sadism is a facet of schadenfreude. By situating the active perpetration of harm for the sake of pleasure within the broader context of the passive enjoyment of harm, we hope that our findings help researchers, policy-makers, and practitioners to understand the nuanced ways in which pleasure can lead to the infliction of pain.

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