

**An Exploratory Study on Disinhibition and Interpersonal Outcomes in Daily Life**

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### Abstract

Disinhibition is a personality trait with broad health implications and has been included in several prominent models of maladaptive personality traits and psychopathology, such as the DSM-5 Alternative Model of Personality Disorders, the Hierarchical Taxonomy of Psychopathology. Cross-sectional global self-report and clinical interview research suggest that disinhibition has a tight link with interpersonal problems, particularly antagonistic problems. However, very little work has examined how individual differences in disinhibition manifest in interpersonal functioning in social situations in daily life. We examined how trait disinhibition and its lower-level facets (e.g., Irresponsibility, Impulsivity, Distractibility) relate to ecological momentary assessments of interpersonal interactions in daily life across three samples (Total Person  $N = 1,068$ , Total Observation  $N = 38,212$ ). Results showed a consistent and positive association between trait disinhibition and negative affect in daily life, above and beyond the effect of trait antagonism, as well as negative association with warmth during social interactions. These findings have implications for the manifestation of disinhibition in daily life and the relationship between externalizing and internalizing psychopathology.

*Keywords:* disinhibition, antagonism, externalizing, social interactions, ecological momentary assessment

### **An Exploratory Study on Disinhibition and Interpersonal Outcomes in Daily Life**

Disinhibition is a broad dispositional trait that refers to an individual's tendency to behave impulsively, take risks, seek out novel and exciting experiences, and lack perseverance towards goals (Dindo et al., 2009). It has far-reaching implications for mental and physical health (Mullins-Sweatt et al., 2019; Schweren et al., 2021). Indeed, impulsiveness, the behavioral manifestation of disinhibition, is the most common symptom across diagnoses in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association [APA], 2013; Cyders, 2015). Moreover, disinhibition has been included explicitly as part of the higher-order constructs in the DSM-5 Alternative Model of Personality Disorders (AMPD; APA, 2013) and as a higher-order spectrum (i.e., Disinhibited Externalizing) in the Hierarchical Taxonomy of Psychopathology (HiTOP; Kotov et al., 2017). Research within each of these frameworks has suggested a privileged link between disinhibition and some forms of social dysfunction, particularly antagonism. At the same time, much of this research has examined associations among individual differences using global, cross-sectional measures of disinhibition and interpersonal functioning. Despite the large body of work investigating the relationship between externalizing psychopathology and, in particular, disinhibition with interpersonal behavior, little is known about how individuals high in disinhibition behave in social situations in daily life. The current study was designed to investigate the links between individual differences in the domain and facets of disinhibition and social perceptions, behavior, and emotions as they manifest in social interactions using ambulatory assessment methods.

From the perspective of structural models of psychopathology, the domains of disinhibition and antagonism, which together make up the broader externalizing spectrum in several frameworks, are correlated domains (metanalytic  $r = .27$ ; Ringwald et al., 2023).

Antagonism is primarily an interpersonal construct and is associated with antisocial behavior, callousness, low trust, hostility, and poor emotion recognition abilities, all of which are associated with interpersonal dysfunction (e.g., Vize et al., 2022; da Costa et al., 2018). In the DSM-5 AMPD, the detachment and antagonism domains correlate similarly in the original derivation sample ( $r = .24$ ; Krueger et al., 2012) and follow up analyses (e.g.,  $r = .26$ ; Wright et al., 2012). However, as scale scores (i.e., not latent variables) these associations are typically much larger (e.g.,  $r_s = .46-.65$ ; Ringwald et al., 2023).

Associations among disinhibition scales and measures of interpersonal problems are also moderate to strong. For instance, as conceptualized through the Interpersonal Circumplex framework (IPC; Wiggins, 1991), PID-5 disinhibition has been associated with diffuse or nonspecific interpersonal impairment and distress in some studies (e.g., Williams & Simms, 2016; Boudreaux et al., 2018) as well as specifically being associated with a cold and dominant interpersonal problems profile in others (e.g., vindictive; Wright et al., 2012). Of note, these studies also examined the association between interpersonal problems and disinhibition facets of the PID-5 (i.e., Irresponsibility, Impulsivity, Distractibility, Rigid perfectionism, Risk taking [Boudreaux et al. did not include data on Rigid perfectionism and Risk taking]). Results varied somewhat across studies. For instance, Wright and colleagues (2012) found prototypically vindictive interpersonal problem profiles for Irresponsibility, and a prototypically Domineering profile for Impulsivity and Risk Taking, but that the remaining facets of Distractibility and Rigid Perfectionism were only associated with interpersonal distress, not a specific style of problems. Williams and Simms (2016) similarly found prototypical Domineering interpersonal problem profiles for Risk Taking and Impulsivity, and a Vindictive profile for Rigid Perfectionism.<sup>1</sup>

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<sup>1</sup>Note that Williams and Simms (2016) also examined the conceptually very similar Comprehensive Assessment of Traits related to Personality Disorders facet scales and found that Non-Planfulness and Norm Violation scales had

Finally, Boudreaux et al. (2018) found that Irresponsibility and Impulsivity had prototypically Vindictive and Domineering themed interpersonal profiles, whereas Distractibility was more generally associated with interpersonal distress. Thus, within and across studies we see that facets are consistently related to general interpersonal distress, but that some have prototypical profiles of interpersonal problems in the dominant to cold-dominant problem themes.

In a related study examining how informants perceived traits and interpersonal problems of individuals with pathological personality features, findings suggested that trait disinhibition is associated with general aversiveness rather than with a specific domain of interpersonal sensitivity. Results also suggested that Distractibility, a facet of disinhibition, is associated with cold-aversive interpersonal behaviors, such as being irritatingly aloof or unresponsive (Williams et al., 2014). Another study examining the association of interpersonal problems with the domain of disinhibition and related psychiatric diagnoses (antisocial personality, drug dependence, alcohol dependence, borderline personality), as assessed by DSM criteria, found that disinhibition had a distinctive domineering interpersonal style (Girard et al., 2017).

These studies, which show a robust link between disinhibition and interpersonal dysfunction, all rely on the shared methodology of global, retrospective self-report. However, relatively little is known about the prospective relationships between disinhibition and interpersonal functioning in social situations. One prior ecological momentary assessment study examining affect and interpersonal behavior in relation to general and specific personality pathology found that trait disinhibition was associated with less dominant behavior, less affiliative behavior and perceived affiliation, more negative affect and less positive affect during

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prototypically Domineering and Risk taking had prototypically Vindictive themed interpersonal problem profiles, respectively, but that Irresponsibility, Non-perseverance, Workaholism, and Perfectionism were only associated diffusely with interpersonal distress generally.

social interactions on average. Compared to other personality traits, disinhibition was associated with a less clear interpersonal signature (Ringwald et al., 2021). Although these findings are informative as this study was one of the first to examine the relationship between trait disinhibition and EMA outcomes, it only examined the domain of disinhibition and did not explore the relations among specific lower-level facets of trait disinhibition and interpersonal behavior.

Taken together, the vast majority of the research linking disinhibition to interpersonal functioning is based on mono-method, global, cross-sectional self-report scales, and when direct links have been investigated with behavior in daily life it has been limited to domain scales of disinhibition. Given that facets appear to have some differential association with interpersonal functioning, it would be useful to examine their associations with behavior and emotions experienced in daily life, particularly in social situations.

### **The Current Study**

To address the gap in research on daily manifestations of disinhibition and to examine the link between trait disinhibition and daily outcomes, we aim to examine how trait disinhibition and its lower-level facets (Irresponsibility, Impulsivity, Distractibility, Risk taking, and Lack of rigid perfectionism) at baseline relate to ecological momentary assessment outcomes of interpersonal interactions, including coldness/warmth, dominance/submissiveness, and positive and negative affect. We plan to test these associations in three independent EMA samples ( $N$  range = 330–396; observations per outcome = 8,768–17,761). Specifically, we had the following research questions: 1) How does trait disinhibition and its lower-level facets—Irresponsibility, Impulsivity, Distractibility, Non-perseverance, Non-planfulness, Risk taking, Lack of workaholism, and Lack of rigid perfectionism—relate to daily life outcomes, including

interpersonal behavior (dominance, warmth) and affect, and 2) How does the relationship between daily life outcomes and trait disinhibition and its lower-level facets change after controlling for trait antagonism? We hypothesized that 1) Trait disinhibition and all its lower-level facets will be associated with more negative affect in daily life, and more dominance and less warmth toward others during social interactions; 2) We do not have a specific hypothesis for the relationship between trait disinhibition and positive affect, but we predict that all lower-level facets of trait disinhibition, except for Risk taking, will be negatively associated with positive affect, while Risk taking will be positively related to positive affect; and 3) Absent any empirical findings, we do not have specific hypotheses on the potential overlap between trait disinhibition and trait antagonism in relation to daily dominant and affiliative behavior.

## **Methods**

### **Transparency and Openness**

All hypotheses and analyses were preregistered and are available at [https://osf.io/7a5de/?view\\_only=5fb8dfd464384f3ea537b2acb22f71c1](https://osf.io/7a5de/?view_only=5fb8dfd464384f3ea537b2acb22f71c1). Anonymized data and code are available at [https://osf.io/dcfb5/?view\\_only=c723a3f4dcb14c3ea9267e202c79a3f7](https://osf.io/dcfb5/?view_only=c723a3f4dcb14c3ea9267e202c79a3f7).

Since we conducted secondary data analyses, we did not determine each sample size for the express purpose of this study. However, we calculated the minimum effect size in the population that would result in power of .80 and alpha at .05 using G\*Power (Faul et al., 2009). The required effect size to detect significance is as follows: Sample 1 = .15, Sample 2 = .15, Sample 3 = .14.

### **Samples and Procedures**

Three samples of momentary affect and interpersonal outcomes were collected using ecological momentary assessment paradigms that varied somewhat in their exact procedures and

recruitment strategies. Sample 1 included community participants (undergraduate students were not eligible to participate), and Samples 2 and 3 were college students. All samples completed a baseline session as well as an EMA section. Specific study information for all three samples is summarized in Table 1. Additional details for each sample are provided in Supplemental Material available online. Reliability for all included subscales is reported in Supplemental Table 1 (S1), and descriptive statistics for all subscales are reported in Supplemental Table 2 (S2). Full demographic information for all samples is provided in the Supplemental Material available online, “Demographics”.

*Table 1.* Study information for each sample.

	Sample type	<i>N</i>	EMA Observations	Prompts/day	Compensation	Global Measures	EMA Measures
Sample 1	Community (undergraduates not eligible)	342	17,761	7 prompts/day for 10 days	\$100 Amazon gift cards; \$70 gift card prize draw	PID-5-SF	Dominance VIAS; Warmth VIAS; PANAS
Sample 2	College	330	11,683	5 prompts/day for 10 days	Course credit	PID-5-SF	Dominance VIAS; Warmth VIAS; PANAS
Sample 3	College	396	8,768	6 prompts/day for 7 days	Course credit; \$75 gift cards prize draw	CAT-PD-SF	Dominance VIAS; Warmth VIAS; PANAS

*Note.* PID-5-SF = Personality Inventory of DSM-5, Short Form (Krueger et al., 2012; Maples et al., 2015); CAT-PD-SF = Computerized Adaptive Assessment of Personality Disorder Static Form (Simms, 2013); PANAS = Positive and Negative Affect Schedule (Watson et al., 1988); VIAS = Visual Interpersonal Analogue Scale (Woods et al., 2023)

## Measures

Trait disinhibition was measured in S1 and S2 using the Disinhibition domain and facets of the Personality Inventory of DSM-5 – Short Form (PID-5–SF; Maples et al., 2015), which is comprised of 100 items (4 for each of 25 trait facets) that are rated on a four-point Likert scale (0



– Very False or Often False; 1 – Sometimes or Somewhat False; 2 – Sometimes or Somewhat True; 3 – Very True or Often True). For this study, we only focus on the Disinhibition domain and its facets (Irresponsibility, Impulsivity, Distractibility, Risk taking, and Lack of rigid perfectionism) and the Antagonism domain score.

S3 used the Comprehensive Assessment of Traits relevant to Personality Disorder Static Form (CAT-PD-SF; Simms, 2013), which includes 216 items rated on a 5-point Likert scale (0 = very untrue of me, 4 = very true of me). For this project, we will only examine traits with empirical and conceptual links to disinhibition, including Irresponsibility, Non-perseverance, and Non-planfulness. Of note, we had initially planned on including Lack of workaholism and Lack of perfectionism in our calculation of trait disinhibition with the CAT-PD-SF in S3, but after preregistering the analyses realized that CAT-PD-SF and PID-5-SF would not be equivalent since the PID-5-SF does not use Lack of perfectionism and Lack of workaholism as lower-level facets in its scoring of trait disinhibition. Therefore, to make the two measures more comparable, we decided to exclude Lack of perfectionism and Lack of workaholism from the CAT-PD-SF disinhibition domain score and only include them in individual facet-level analyses<sup>2</sup>.

Trait antagonism was represented in S1 and S2 as the PID-5-SF Antagonism domain score. In S3, it was represented by the mean of CAT-PD-SF Callousness, Domineering, Exhibitionism, Grandiosity, Hostile aggression, Manipulativeness, Norm violation, Rudeness, and Anger.

Average momentary interpersonal behavior was assessed using the Visual Interpersonal Analogue Scale (VIAS; Woods et al., 2023), which was developed to efficiently assess dominant

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<sup>2</sup>Note that when lack of perfectionism and lack of workaholism are included as facets of trait disinhibition in CAT-PD-SF, they result in null associations between trait disinhibition and daily outcomes due to the complex associations between workaholism/perfectionism and other disinhibition facets.

and affiliative behavior during social interactions. Affiliative behavior was assessed using a visual analogue slider bar ranging from -50 (*Cold/Distant/Hostile*) to 50 (*Warm/Friendly/Caring*), and average momentary coldness/warmth was represented in all samples as the person-specific average of all EMA ratings from -50 to 50. Dominant behavior was assessed using the VIAS similar to affiliative behavior, but the lower pole was described as “Accommodating/Submissive/Timid” and the positive pole as “Assertive/Dominant/Controlling.” Average momentary dominance/submissiveness was represented in all samples as the person-specific average of all EMA ratings from -50 to 50.

Momentary positive affect was represented by Happy, Proud, Content, Excited, and Relaxed. Negative affect was represented by Ashamed, Nervous, Hostile, Sad, and Angry. The adjectives are a subset of the broader set of adjectives taken from the Positive and Negative Affective Schedule (Watson et al., 1988). Participants were asked questions in the form “How ADJECTIVE do you feel right now?”. Ratings were made on a scale from 0 (Not at All) to 100 (Extremely). In S1 and S2, however, “confident” was used instead of “content” to represent positive affect. The five items for PA and NA were averaged to create indices of positive affect and negative affect. Average momentary positive affect was represented in all samples as the person-specific average of all EMA ratings from 0 to 100, and average momentary negative affect was represented in all samples as the person-specific average of all EMA ratings from 0 to 100.

More detailed information on each measure is provided in the Supplemental Material available online, “Measures”.

## Analytic Plan

For all analyses, we used Base R (v4.2.3; R Core Team, 2023) and Rstudio (v2023.06.0; Posit Team, 2023), in addition to the following R packages: *psych* (Revelle, 2023), *dplyr* (Wickham et al., 2023), *ggplot2* (Wickham, 2016), *Hmisc* (Harrell, 2023), *corrplot* (Wei & Simko, 2021), *corrtable* (van der Laken, 2022), *statip* (Poncet & The R Core Team, 2019), and *emmeans* (Lenth, 2023). All scores were calculated using instrument-standard procedures. Specifically, for the testing of our preregistered hypotheses, we operationalized our variables as follows:

To test our primary preregistered hypotheses, we estimated regression models predicting momentary affiliative behavior from dispositional disinhibition. Separately, we predicted momentary dominant behavior from dispositional disinhibition. We also estimated regression models predicting momentary negative affect during social interactions, and separately, negative affect outside of social interactions from dispositional disinhibition. Similarly, we estimated regression models predicting momentary positive affect during social interactions, and separately, positive affect outside of social interactions from dispositional disinhibition.

We also estimated separate regression models to predict the lower-level facets of disinhibition (Irresponsibility, Impulsivity, Distractibility, Risk taking, and Lack of rigid perfectionism<sup>3</sup> in S1 and S2; Irresponsibility, Non-perseverance, Non-planfulness, Lack of workaholism, and Lack of perfectionism in S3) from momentary affiliative and dominant behavior, and from momentary positive and negative affect both during social interactions and regardless of social context.

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<sup>3</sup> Although trait disinhibition as scored by the PID-5-SF does not include Risk taking and Lack of rigid perfectionism, we decided to include these facets in individual facet-level models due to their conceptual ties to trait disinhibition (Krueger et al., 2012).

Finally, we estimated the models described above with momentary affiliative and dominant behavior while controlling for trait antagonism.

## Results

Measure means and standard deviations are reported in Supplemental Table S2.

Throughout, we used a threshold of  $r \leq .1$  for a small effect size,  $r \leq .2$  for a medium effect, and  $r \leq .3$  for a large effect size given that these are cross-methods effects of global retrospective self-report associated with momentary reports from EMA.

### Trait Disinhibition and Daily Outcomes

Zero-order correlations among primary measures are reported in Table 2.

*Table 2.* Zero-order correlations among trait measures of disinhibition and its facets and daily ambulatory assessment outcomes.

DAILY OUTCOMES						
	NA	PA	Social Interaction Outcomes			
			NA	PA	Warmth	Dominance
<i>Sample 1</i>						
<b>PID-5-SF Disinhibition</b>	<b>.39***</b> (n = 341)	-.00 (n = 341)	<b>.37***</b> (n = 340)	-.03 (n = 340)	<b>-.21***</b> (n = 340)	-.08 (n = 340)
<b>Facet Irresponsibility</b>	<b>.35***</b> (n = 341)	.02 (n = 341)	<b>.35***</b> (n = 340)	-.03 (n = 340)	<b>-.25***</b> (n = 340)	-.04 (n = 340)
<b>Facet Distractibility</b>	<b>.32***</b> (n = 341)	-.09 (n = 341)	<b>.30***</b> (n = 340)	-.07 (n = 340)	<b>-.15**</b> (n = 340)	-.10 (n = 340)
<b>Facet Impulsivity</b>	<b>.29***</b> (n = 341)	<b>.11*</b> (n = 341)	<b>.28***</b> (n = 340)	.06 (n = 340)	<b>-.15**</b> (n = 340)	-.04 (n = 340)
<i>Sample 2</i>						
<b>PID-5-SF Disinhibition</b>	<b>.27***</b> (n = 329)	<b>-.12*</b> (n = 329)	<b>.23***</b> (n = 327)	<b>-.12*</b> (n = 327)	<b>-.18**</b> (n = 327)	-.04 (n = 327)
<b>Facet Irresponsibility</b>	<b>.24***</b> (n = 329)	-.07 (n = 329)	<b>.26***</b> (n = 327)	<b>-.11*</b> (n = 327)	<b>-.27***</b> (n = 327)	.01 (n = 327)
<b>Facet Distractibility</b>	<b>.18***</b> (n = 329)	<b>-.15**</b> (n = 329)	.10 (n = 327)	<b>-.12*</b> (n = 327)	-.08 (n = 327)	-.02 (n = 327)

<b>Facet Impulsivity</b>	<b>.21***</b> (n = 329)	-.04 (n = 329)	<b>.21***</b> (n = 327)	-.06 (n = 327)	<b>-.13*</b> (n = 327)	-.07 (n = 327)
<i>Sample 3</i>						
<b>CAT-PD-SF Disinhibition</b>	<b>.27***</b> (n = 367)	<b>-.13*</b> (n = 367)	<b>.17***</b> (n = 385)	<b>-.10*</b> (n = 385)	<b>-.11*</b> (n = 385)	.03 (n = 385)
<b>Facet Irresponsibility</b>	<b>.25***</b> (n = 367)	<b>-.15**</b> (n = 367)	<b>.19***</b> (n = 385)	<b>-.14**</b> (n = 385)	<b>-.17***</b> (n = 385)	.02 (n = 385)
<b>Facet Non- perseverance</b>	<b>.29***</b> (n = 367)	<b>-.20***</b> (n = 367)	<b>.21***</b> (n = 385)	<b>-.17**</b> (n = 385)	<b>-.12*</b> (n = 385)	-.02 (n = 385)
<b>Facet Non- planfulness</b>	<b>.15**</b> (n = 367)	.01 (n = 367)	.05 (n = 385)	.05 (n = 385)	-.01 (n = 385)	.08 (n = 385)

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*Note.* PID-5-SF = Personality Inventory of DSM-5, Short Form; CAT-PD-SF = Computerized Adaptive Assessment of Personality Disorder Static Form; NA = Negative affect; PA = Positive affect.

### Trait Disinhibition – Domain Findings

As shown in Table 2, the correlation between average momentary (i.e., not specific to social interactions) NA and trait disinhibition was significant in all samples, with values ranging from .27 to .39. The correlation between average NA during social interactions and trait disinhibition was also significant across all samples, with effect sizes generally similar to those of the daily NA models. In contrast, the correlation between average PA, both momentary and during social interactions, and trait disinhibition was less consistent with weaker effects, ranging from -.03 to -.13. Warmth during social interactions consistently showed a significant negative correlation with trait disinhibition across all three samples ( $r$  range: -.11 to -.21). However, the correlation between dominance and trait disinhibition was small and nonsignificant in all samples.

**Trait Disinhibition – Facet Findings**

Consistent with the domain findings, the correlation between average momentary NA and disinhibition facets was significant in all samples, with values ranging from .15 to .35. The correlation between NA during social interactions and disinhibition facets was somewhat weaker and less consistent, with effects ranging from .05 to .35. The findings for PA, both daily and during social interactions, and disinhibition facets were mixed. The relationship between the Irresponsibility facet of trait disinhibition and warmth during social interactions was significant in all three samples ( $r$  range:  $-.17$  to  $-.27$ ). Likewise, Impulsivity had a negative relationship with warmth, with effects of  $-.13$  and  $-.15$ . The relationship between Distractibility and warmth was mixed, Non-perseverance was negatively related to warmth ( $r = -.12$ ), while Non-planfulness was not significantly related to warmth. Dominance during social interactions was not significantly related to any of the disinhibition facets.

**Trait Disinhibition and Daily Outcomes, Adjusting for Trait Antagonism**

We examined whether the primary findings would hold after accounting for the effect of trait antagonism. The results are reported in Table 3.

Table 3. Multivariable regressions among trait measures of disinhibition and its facets and daily ambulatory assessment outcomes, adjusting for trait antagonism.

DAILY OUTCOMES, ADJUSTING FOR TRAIT ANTAGONISM						
	NA <sup>†</sup>	PA <sup>†</sup>	Social Interaction Outcomes			
			NA <sup>†</sup>	PA <sup>†</sup>	Warmth <sup>†</sup>	Dominance <sup>†</sup>
<i>Sample 1</i>						
PID-5-SF Disinhibition	.33*** (n = 341)	-.12 (n = 341)	.30*** (n = 340)	-.07 (n = 340)	-.12* (n = 340)	-.14* (n = 340)
Facet Irresponsibility	.28*** (n = 341)	-.11 (n = 341)	.27*** (n = 340)	-.08 (n = 340)	-.17** (n = 340)	-.09 (n = 340)
Facet Distractibility	.26*** (n = 341)	-.16** (n = 341)	.23*** (n = 340)	-.10 (n = 340)	-.09 (n = 340)	-.23* (n = 340)
Facet Impulsivity	.21*** (n = 341)	.04 (n = 341)	.19** (n = 340)	.04 (n = 340)	-.05 (n = 340)	-.07 (n = 340)
<i>Sample 2</i>						
PID-5-SF Disinhibition	.22*** (n = 329)	-.24*** (n = 329)	.16* (n = 327)	-.19** (n = 327)	-.11 (n = 327)	-.13* (n = 327)
Facet Irresponsibility	.18** (n = 329)	-.23*** (n = 329)	.19** (n = 327)	-.22** (n = 327)	-.22** (n = 327)	-.10 (n = 327)
Facet Distractibility	.14** (n = 329)	-.19*** (n = 329)	.06 (n = 327)	-.14* (n = 327)	-.04 (n = 327)	-.05 (n = 327)
Facet Impulsivity	.15* (n = 329)	-.11 (n = 329)	.14* (n = 327)	-.10 (n = 327)	-.06 (n = 327)	-.15* (n = 327)
<i>Sample 3</i>						
CAT-PD-SF Disinhibition	.17** (n = 367)	-.12* (n = 367)	.04 (n = 385)	-.08 (n = 385)	.01 (n = 385)	-.05 (n = 385)
Facet Irresponsibility	.16** (n = 367)	-.15** (n = 367)	.08 (n = 385)	-.13* (n = 385)	-.08 (n = 385)	-.05 (n = 385)
Facet Non-perseverance	.20*** (n = 367)	-.20*** (n = 367)	.10 (n = 385)	-.16** (n = 385)	-.02 (n = 385)	-.10 (n = 385)
Facet Non-planfulness	.05 (n = 367)	.05 (n = 367)	-.08 (n = 385)	.09 (n = 385)	.10 (n = 385)	.03 (n = 385)

Note. PID-5-SF = Personality Inventory of DSM-5, Short Form; CAT-PD-SF = Computerized Adaptive Assessment of Personality Disorder Static Form; NA = Negative affect; PA = Positive affect; † = controlling for trait antagonism.

As reported in Table 3, the relationship between momentary NA and trait disinhibition remained significant and moderate in size after controlling for trait antagonism in all three samples. This was also the case for all lower-level disinhibition facets, with the exception of Non-planfulness in Sample 3. The pattern for NA during social interactions was less consistent, with significant associations with trait disinhibition emerging only in Samples 1 and 2. The association between warmth during social interactions and trait disinhibition remained significant though modest in size after controlling for trait antagonism only in Sample 1, but not in Samples 2 and 3. The relationships of trait disinhibition and dominance, and trait disinhibition and PA were largely inconsistent across the three samples.

### Other Traits and Daily Outcomes

We tested how other traits with conceptual ties to disinhibition related to daily outcomes.

The results are reported below in Table 4.

*Table 4.* Zero-order correlations among other traits related to disinhibition and daily ambulatory assessment outcomes.

DAILY OUTCOMES						
	NA	PA	Social Interaction Outcomes			
			NA	PA	Warmth	Dominance
<i>Sample 1</i>						
Lack of Rigid Perfectionism	-.29*** (n = 341)	-.00 (n = 341)	-.24*** (n = 340)	-.13 (n = 340)	.05 (n = 340)	.03 (n = 340)
Risk Taking	.18*** (n = 341)	.13* (n = 341)	.19*** (n = 340)	.10 (n = 340)	-.15** (n = 340)	.00 (n = 340)
<i>Sample 2</i>						
Lack of Rigid Perfectionism	-.14** (n = 329)	-.02 (n = 329)	-.16** (n = 327)	.03 (n = 327)	.04 (n = 327)	-.00 (n = 327)
Risk Taking	.15** (n = 329)	.06 (n = 329)	.17** (n = 327)	.00 (n = 327)	-.15** (n = 327)	-.02 (n = 327)
<i>Sample 3</i>						
Lack of Rigid Perfectionism	-.18*** (n = 367)	.07 (n = 367)	-.21*** (n = 385)	.07 (n = 385)	.11* (n = 385)	-.03 (n = 385)



<b>Lack of Workaholism</b>	<b>-.14**</b> (n = 367)	.02 (n = 367)	<b>-.18***</b> (n = 385)	.01 (n = 385)	.05 (n = 385)	-.06 (n = 385)
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*Note.* NA = Negative affect; PA = Positive affect.

After accounting for the effect of trait antagonism, the relationship between Lack of perfectionism and daily negative affect remained significant in S1 ( $\beta = -.22$ , 95% CI =  $-.33, -.12$ ,  $p = .000$ ). Furthermore, after controlling for trait antagonism, trait Lack of perfectionism was negatively and significantly associated with negative affect during social interactions in S1 ( $\beta = -.17$ , 95% CI =  $-.28, -.068$ ,  $p = .0014$ ) and S3 ( $\beta = -.12$ , 95% CI =  $-.22, -.017$ ,  $p = .0239$ ). Similarly, the association between trait Lack of workaholism was significantly associated with negative affect during social interactions above and beyond trait antagonism in S3 ( $\beta = -.13$ , 95% CI =  $-.23, -.035$ ,  $p = .0075$ ).

### Discussion

Disinhibition is a personality trait that has been included in several prominent models of psychopathology and has wide-ranging implications for psychopathology, personality pathology, and health behaviors. The bulk of prior work examining the relationship between trait disinhibition and social functioning has been cross-sectional, while interpersonal situations are context-specific and often best studied in the moment as they unfold. More recently, several EMA and daily diary studies have examined the relationship between interpersonal functioning and trait disinhibition, but none explored the link between their lower-level facets and interpersonal behavior. This study examined the association of trait disinhibition and its lower-level facets with daily outcomes, including affect, dominance, and affiliative behavior during social interactions. Across three preregistered samples, we found consistent associations between disinhibition and its constituent traits with higher daily negative affect, and lower warmth and

higher negative affect during social interactions, which is in line with similar analyses using some of the same data examining the relationship between trait disinhibition and EMA outcomes (Ringwald et al., 2021). Extending prior work, we also examined the associations between disinhibition and its constituent traits with daily outcomes above and beyond the role of trait antagonism. Although the relations with warmth could be explained by the shared variance between disinhibition and antagonism, the relations with negative affect could not and survived correction for antagonism.

Our findings suggest that although trait disinhibition was related to interpersonal functioning, this association seems to be mostly accounted for by the shared variance with trait antagonism. We consistently found a moderate and negative association between trait disinhibition and warmth during social interactions, however, after accounting for trait antagonism, the findings were largely nonsignificant and, at best, inconsistent. This finding stands in contrast to previous cross-sectional work pointing to the link between trait disinhibition and higher interpersonal dysfunction (Williams et al., 2014; Wright et al., 2012). However, in those prior studies, the overlap with antagonism is rarely if ever adjusted for. It is noteworthy that these initially significant findings with warmth that disappear after covariate adjustment emerged across two different measures of trait disinhibition, PID-5-SF and CAT-PD-SF, further pointing to the robustness of the findings. This suggests that interpersonal warmth/coldness is not directly related to disinhibition but rather may be primarily a correlate of trait antagonism. This is in line with previous findings on antagonism and interpersonal functioning using ambulatory assessment methods (Vize et al., 2022).

In addition, we found no associations between disinhibition and interpersonal dominant behavior across all samples. This stands in contrast to cross-sectional research that has typically

found a positive association between disinhibition and dominance (e.g., Wright et al., 2012). We did, however, find some measure-specific suppression effects with trait disinhibition, as assessed by the PID-5-SF, and dominance after accounting for trait antagonism. The negative association between trait disinhibition and dominance may seem counter-intuitive, as we would anticipate a positive link between disinhibition, a part of the externalizing spectrum, and dominance in interpersonal situations. However, in the same control models, the relationship between trait antagonism and dominance was positive, though statistical significance was inconsistent (Sample 1:  $\beta = .12$ , 95% CI = .00, .25,  $p = .050$ ; Sample 2:  $\beta = .19$ , 95% CI = .07, .31,  $p = .003$ ), partially explaining the negative suppression effect with trait disinhibition. Once the shared variance with antagonism was accounted for, the residual negative association between disinhibition and interpersonal dominance may suggest that there could be aspects of disinhibition (e.g., Lack of perseverance) that contribute to submissive behavior in interpersonal situations. Since we found no suppression effect with trait disinhibition as assessed by CAT-PD-SF in Sample 3, future work is needed to further explore this association using the CAT-PD-SF, as it is possible that sample- or protocol-specific differences in our study may have contributed to the different set of results in Sample 3. Regardless, since the suppression effect was inconsistent across the three samples, this finding is only speculative at this point and should be interpreted with caution.

We also consistently found a modest to moderate positive association between daily negative affect and trait disinhibition in all three samples and across both trait measures of disinhibition, which is in line with previous EMA work (Ringwald et al., 2021). We also observed a similar pattern with Risk taking, another facet of trait disinhibition. In addition, these findings held above and beyond the effect of trait antagonism in all models, with the exception of facet Non-planfulness in Sample 3 and Risk taking in Sample 2. The significant association

between trait disinhibition and negative affect after adjusting for trait antagonism may explain the moderate correlation found in prior studies between internalizing and externalizing spectra of psychopathology (e.g., Scott et al., 2020; Wright et al., 2015). There are several possible explanations for this finding: It is possible that the process cutting across and linking internalizing and externalizing psychopathology, despite their dissimilar outward presentations and distinct affective dynamic signatures, may be negative affectivity. In other words, the process linking internalizing and externalizing psychopathology could be the experience of distress, which is shared across all forms of psychopathology. This view is in line with theories suggesting that the tendency to experience negative emotions, or neuroticism, could reflect a general factor of psychopathology (e.g., Caspi et al., 2014; Tackett et al., 2013; Southward et al., 2023). Another possibility is that disinhibition may increase the risk of experiencing negative emotions in general, and this may, in turn, play a role in developing or experiencing internalizing pathologies. That is, trait disinhibition may serve as a vulnerability factor for increased frequency or intensity of negative emotions, which, in turn, could lead to internalizing psychopathologies. This hypothesis could partially explain the positive correlation and high rates of cooccurrence between externalizing psychopathology, such as disinhibition, and internalizing conditions, such as anxiety and depression, which are reported to have high rates of covariation (e.g., Carragher et al., 2015; Wilner et al., 2016). Since this is, to our knowledge, the first study to explore this linkage using ambulatory assessment data, it would be worthwhile for future studies to replicate this finding.

Finally, both Perfectionism and Workaholism were positively associated with the amount of negative affect (both daily and during social interactions) experienced in the moment. Given that many structural models would presume that perfectionism and workaholism reflect the

opposite pole of a dimension with disinhibition, these positive associations may seem unexpected. However, the shared positive association with distress highlights the maladaptivity that is associated with both disinhibition and its logical opposite, constraint. The positive association between Perfectionism/Workaholism and negative affect may also be partially explained by viewing overcontrol, including perfectionism and workaholism, as a separate and distinct domain from disinhibition. This perspective is also reflected in the most recent edition of the International Statistical Classification of Diseases, which includes anankastia in the dimensional trait model for diagnosing personality disorders (ICD-11; World Health Organization, 2019). In support of this view, a study examining the construct validity and structure of CAT-PD domains found that anankastia, representing overcontrol, rigid adherence to routines, and risk aversion, which has been typically viewed as the low end of trait disinhibition (Krueger et al., 2012), emerged as a sixth personality factor distinct from disinhibition (Ringwald et al., 2023). Given the discrepant views on the exact relationship between conscientiousness, anankastia, and disinhibition, future research is needed to further explore the associations between disinhibition and overcontrol and how each relates to interpersonal functioning.

## **Conclusion**

This study is one of the first to specifically examine the relationship of trait disinhibition and its lower-level facets with ecological momentary assessment outcomes of interpersonal interactions in daily life, and contributes to the body work on personality and social functioning. Across three preregistered samples, we found that trait disinhibition is associated with less warmth during social interactions as well as increased negative affect in daily life. Our results have implications for the manifestation of disinhibition in daily life, the conceptualization of

personality disorders as interpersonal disorders, and the overlap between internalizing and externalizing psychopathology.

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