Brandes, C. M., Reardon, K. W., Shields, A. N., & Tackett, J. L. (in press). Towards construct validity of relational aggression: An examination of the Children's Social Behavior Scale. *Psychological Assessment*.

**Towards Construct Validity of Relational Aggression:
An Examination of the Children's Social Behavior Scale**

Cassandra M. Brandes¹, Kathleen W. Reardon², Allison N. Shields¹, and Jennifer L. Tackett¹

¹ Department of Psychology, Northwestern University

² Center for Applied Psychological and Family Studies, The Family Institute at Northwestern
University

Author Note

This research was supported by funding by the Social Sciences and Humanities Research Council of Canada, the Ontario Ministry of Research and Innovation, the Connaught Fund, and ACT, awarded to J.L.T. C.M.B. was supported in this project by a fellowship from the Northwestern Institute on Complex Systems. The authors would like to thank all of the participants who have generously given us their time and effort for each one of our studies in the Personality Across Development Lab.

Correspondence concerning this article should be addressed to Cassandra M. Brandes, Swift Hall 102, 2029 Sheridan Road, Evanston, IL 60208. Email: cbrandes@u.northwestern.edu

The preregistration, protocol, measure, analytic code, and supplemental results have been archived on the Open Science Framework at <https://osf.io/gpjr9/>.

Abstract

Relational aggression – or behavior intended to harm the relationships of its victims – has been the focus of interdisciplinary study across developmental, clinical, personality, and social psychology in the last several decades. One of the primary measures used to assess relational aggression in youth is the Children’s Social Behavior Scale (CSBS; Crick & Grotpeter, 1995), but despite its common usage, the construct validity of this measure has not been comprehensively assessed. In the present study, we used a multistage construct validity framework to thoroughly investigate the nature of relational aggression across six community samples totaling 3,102 youth and their caregivers. We used multiple methods to map the reliability, internal or structural validity, and external validity of this scale. Through these analyses, we found that CSBS Relational Aggression demonstrated strong internal consistency, test-retest, and interrater reliability as well as a robust single factor structure and invariance across multiple demographic groups. External validity analyses positioned relational aggression within a theoretically consistent nomological net including psychopathology, personality, and social developmental factors. Contrary to concerns about the validity of self- and parent-reports of relational aggression, both parent- and youth-report forms of the CSBS Relational Aggression scale demonstrated strong reliability and validity. While construct validation has received inadequate attention in the psychological literature to date, through this project, we aimed to demonstrate how this approach may be used to investigate existing measures across psychological research.

Keywords: relational aggression, construct validity, psychometrics, social aggression, developmental psychopathology

Public significance statement:

The current replication crisis in psychological science is due, in part, to poor measurement practices. Relational aggression – or acts of social exclusion and intentional social status manipulation – are of great import, with consequences for both aggressors and victims. In the current paper, we employ in-depth measurement evaluation practices investigating a widely used measure of relational aggression to ensure this consequential literature relies on a solid measurement foundation.

Towards Construct Validity of Relational Aggression:**An Examination of the Children's Social Behavior Scale**

Substantial research attention has been devoted to the topics of aggression and other acting out behaviors in childhood. Childhood physical aggression is highly observable and associated with significant consequences for the aggressor and victims, as well as distress and disruption more broadly (e.g., for parents, teachers, and community members; Casper & Card, 2017). For half a century, a small but steady research literature has been devoted to a different kind of childhood aggression. Referred to as social, indirect, or relational aggression, this other form of aggression relies on the use of interpersonal skills, status, and relationships to cause harm (Archer & Coyne, 2005; Crick & Grotpeter, 1995; Voulgaridou & Kokkinos, 2015). Although historically conceptualized as a more “female” form of aggression (e.g., Crick & Grotpeter, 1995), boys and girls engage in relational aggression at similar rates (e.g., Card et al., 2008; Voulgaridou & Kokkinos, 2015).

Much has been learned about relational aggression in terms of the nature of the behaviors and their correlates and consequences (e.g., Archer & Coyne, 2005; Coyne & Ostrov, 2018; Tackett et al., 2013; Tackett, Herzhoff, et al., 2014; Tackett, Kushner, et al., 2014; Voulgaridou & Kokkinos, 2015). Yet, it remains substantially understudied relative to other forms of disruptive behavioral problems in youth. The focus of the current paper is to comprehensively evaluate the relational aggression construct via independent validation of one of the most widely used relational aggression measures, the Children's Social Behavior Scale (CSBS; Crick & Grotpeter, 1995). Psychological measurement – and construct validation specifically – represents the bedrock of all empirical psychological investigation, yet it is often neglected in modern psychological science (Clark & Watson, 2019; Cronbach & Meehl, 1955; Tay & Jebb, 2018).

The Nature of the Relational Aggression Construct

Relational aggression is a common and, to a degree, even normative behavior, particularly in middle childhood and early adolescence when social skills become increasingly sophisticated and social status is highly salient (Fite & Pederson, 2018; Tackett, Herzhoff, et al., 2014). It includes many specific behaviors such as malicious gossip, intentionally ignoring another, and excluding others from party invitations or other social groupings (e.g., social clustering in the lunchroom; Archer & Coyne, 2005). Many researchers also maintain that relational aggression is, by nature, covert (e.g., Underwood et al., 2018). Like other forms of aggression, relationally aggressive acts involve an aggressor, a victim, and an intent to harm. Relational aggression can also reach extreme (i.e., pathological/clinical) levels and can result in significant impairment for both relationally aggressive children and their victims. Thus, although not currently included in modern psychiatric taxonomies, it has been argued that relational aggression and disinhibitory child psychopathology have more in common than not (Reardon et al., 2018, 2020; Tackett et al., 2013; Tackett, Kushner, et al., 2014; Tackett et al., 2009). Although relational aggression occurs across the lifespan (Archer & Coyne, 2005), we focus here on its manifestations in childhood and adolescence, when it is the most common (and potentially the most damaging; Fite & Pederson, 2018; Tackett, Herzhoff, et al., 2014).

When considering the overall health and functioning of the aggressor, children who perpetrate increased relational aggression show increased risk for both internalizing (e.g., anxiety, depression) and externalizing (e.g., oppositionality, rule breaking) forms of psychopathology (Archer & Coyne, 2005; Card et al., 2008; Tackett & Ostrov, 2010). Within the domain of externalizing psychopathology, relational aggression shows levels of comorbidity comparable to that of externalizing disorders themselves, which again supports the inclusion of

relational aggression on a spectrum with other forms of child psychopathology (Tackett, 2010; Tackett et al., 2013). Relational aggression perpetrators show a variety of other forms of maladjustment as well, including impaired social functioning and an increased likelihood of being a victim of aggression themselves (Archer & Coyne, 2005; Crick, 1996; Crick & Grotpeter, 1995; Leadbeater & Sturges, 2018; Leff et al., 2010). Of course, it is not just the aggressors who suffer deleterious consequences from these behaviors. Much empirical work has supported the severe and far-reaching consequences for relational aggression victims, who often report increased rates of internalizing and externalizing psychopathology and increased social isolation and maladjustment (Ostrov, 2010; Prinstein et al., 2001). Thus, the impairment stemming from these behaviors is wide-ranging and highly consequential.

One approach to better understanding the psychological nature of relationally aggressive behaviors is by examining associations with personality traits. Personality associations with psychopathology may provide a richer understanding of the psychological components of various disorders and syndromes than examination of symptoms alone (e.g., Tackett, Kushner, et al., 2014). Like other child externalizing problems, relational aggression is typically associated with high neuroticism and low agreeableness and conscientiousness (Tackett et al., 2013; Voulgaridou & Kokkinos, 2015). Curiously, relational aggression initially appeared to be less related to personality traits than were other forms of externalizing pathology (Tackett et al., 2013), however, personality traits most strongly associated with relational aggression are found in personality pathology domains (Crick et al., 2005; Ostrov & Houston, 2008; Reardon et al., 2018, 2020; Tackett, Herzhoff, et al., 2014; Tackett, Kushner et al., 2014; Underwood et al., 2011). In particular, relational aggression is associated with interpersonal manipulation and antagonism and, perhaps most strongly, with narcissistic traits (Reardon et al., 2018, 2020). This

work adds more evidence for considering relational aggression in clinical contexts, and specifically implies that relational aggression may represent an early developmental manifestation of narcissistic personality disorder. However, further work is needed to understand the nomological network of the relational aggression construct.

Construct validation refers to an ongoing, iterative process whereby psychological theory and measurement are mutually interlocking and interdependent—measurement should be based on sound psychological theory, and data accumulation with best measurement practices, in turn, leads to updates in theory (Cronbach & Meehl, 1955). Construct validation consists of many steps (covered more thoroughly in Clark & Watson, 2019; Tay & Jebb, 2018) including construct operationalization, structural analysis of scales designed to assess the construct (e.g., reliability, factor analysis), and testing of associations with theoretically relevant external variables and outcomes otherwise known as the nomological network (e.g., convergent validity, predictive validity). Though early work on this topic is commonly cited, true construct validation is very rarely practiced in psychological measurement (Flake et al., 2017; Hussey & Hughes, 2020). Researchers often focus on just one index or aspect of validity (e.g., internal consistency, convergent validity), neglect the role of theory in construct validation (Grahek et al., 2020), or misattribute construct validity to tests themselves, rather than to our *interpretations* of test scores (e.g., Clark & Watson, 2019; Cronbach & Meehl, 1955; Tay & Jebb, 2018). The importance of construct validation efforts is clear, but the field remains in dire need of more empirical demonstrations of this process in the literature. The current investigation focuses on an existing scale, so certain aspects of construct validation were not considered here (e.g., continuum specification, scale development; Clark & Watson, 2019; Tay & Jebb, 2018); nonetheless, we

hope the current work serves as one example of how to interrogate existing and widely used measures within a construct validation framework.

Investigating the Construct Validity of Relational Aggression

Given the socially undesirable and often covert nature of relational aggression, researchers have been very cautious about its measurement (e.g., Archer & Coyne, 2005; Tackett & Ostrov, 2010; Underwood et al., 2018). Some studies have used creative approaches to observational measurement or behavior provoked in laboratory manipulations, although such work is very resource-intensive (e.g., Ostrov et al., 2004). As self- and informant-reports are often the most flexible, efficient, and reliable methods for assessing behavior (Dang et al., 2020), measurement of relational aggression has relied heavily on questionnaire report (as with most similar psychological constructs). Despite this, there remain concerns that parents and teachers may often miss these covert behaviors or that youth self-reports may suffer from acquiescence and other age-specific response biases (e.g., Underwood et al., 2018). Perhaps the most widely used questionnaire is the CSBS developed by Crick and Grotpeter (1995). Given the relative novelty of this construct and the small number of research labs actively investigating it, perhaps it is no surprise that a “gold standard” measure does not currently exist. For over a decade, we have used the same version of the parent- and youth-report CSBS across multiple samples. This offers us an important opportunity to test some of the concerns about questionnaire measures of relational aggression, and to undertake a deep-dive validation effort of relational aggression as assessed via this foundational, yet previously underexamined measure.

In the present study, we examine the following aspects of construct validity of the CSBS Relational Aggression (RAgg) subscale in a demographically diverse pooled sample of children:

- 1) Reliability, including internal consistency, test-retest, and interrater;

- 2) Structural validity, including unidimensionality assessed within a factor analytic framework; Item Response Theory (IRT) analysis of item difficulty (or location), discrimination, and information; and measurement invariance of the CSBS across gender, race/ethnicity, age, and time;
- 3) External validity, including convergent/discriminant validity with other measures assessing relational aggression, broad personality traits, psychopathology dimensions, and other forms of aggression; and criterion and predictive validity with measures of social problems, social competencies, peer relationship quality, friendship quality, satisfaction with life, subjective well-being, non-independent life stressors, and callous-unemotional traits.

We have included tables of expected correlation magnitudes in our preregistration (<https://osf.io/fmzy4>). However, this project is primarily descriptive, and thus, we do not advance specific hypotheses about many of the planned psychometric analyses.

Methods

Participants

The pooled sample consisted of 3,102 5- to 18-year-olds ($M_{\text{age}} = 11.42$ years, $SD_{\text{age}} = 3.35$ years, 50.4% female) and their primary caregivers, derived from six distinct community samples drawn from different regions across North America. Among those who reported it, child race/ethnicity for the pooled sample was 59.8% White/non-Latino, 13.7% Asian/Pacific Islander, 10.2% Black/African American, 7.0% Latino/Latina, 4.7% multiple visible minorities, and 4.7% other (9.8% of participants did not report race/ethnicity). Exclusion criteria for all studies were neurodevelopmental or psychotic disorders or intellectual disability in the child and additional online data quality-control exclusions were applied to Sample 5 (e.g., failed attention check

items, insufficient time spent on each page; see preregistration for a full list). Inclusion criteria were fluency in English (all samples), or English or Spanish (Sample 3 only). Where individuals participated in two of the selected studies, they were excluded from data analysis in the second study. Where multiple siblings participated in the same study, siblings with either less complete data or who participated second were excluded from data analysis. Sample-specific demographics and ethics approval information can be found in Table 1 and on the OSF page (<https://osf.io/gpjr9/>).

Procedures

Data for the present study were collected from six studies of community individuals using a combination of recruitment methods including flyering, community outreach, school registries, word of mouth, online study platforms, and a community participant pool. Measures of relational and physical aggression, personality, temperament, psychopathology, and constructs selected for validity analyses are included here. Participant recruitment source, compensation, and survey modality differed by study (see Table 1). Each sample completed a different combination of the measures included here, and multiple versions of select measures (e.g., the Dimensional Personality Symptom Item Pool; De Clercq et al., 2006) were administered across the different samples. Subsample sizes by measure and measure version are included in Table 2.

Measures

The primary measure examined in the present study was the 5-item RAgg subscale of the Children's Social Behavior Scale (CSBS; Crick & Grotpeter, 1995), a 13-item questionnaire completed by parents and youth. Items were rated on a 5-point scale ranging from 1 (*never true*) to 5 (*almost always true*). Other measures examined in the construct validation process are listed below, and a complete description of measures administered can be found in Table 2; full

descriptive statistics can be found on the OSF page for this project. Further detail on the scoring of these measures is also included in the preregistration for this project.

Aggression

Relational aggression was also measured using the Social Relations Questionnaire (SRQ; Lahey et al., 2004) and the Relational Aggression subscale of the Forms and Functions of Aggression questionnaire (FFA; Little et al., 2003), both administered as interviews. Physical and overt aggression were measured by the Physical Aggression subscale of the CSBS (Crick & Grotpeter, 1995) and the Overt Aggression scale of the FFA.

Psychopathology

Psychopathology was measured using the Internalizing and Externalizing scales of the Child Behavior Checklist and Youth Self-Report (CBCL and YSR; Achenbach & Rescorla, 2001) and the Pediatric Symptom Checklist-17 (PSC-17; Gardner et al., 1999), the Inventory of Callous-Unemotional Traits total score (ICU; Frick, 2004), and the Disagreeableness scale of three different versions of the Dimensional Personality Symptom Item Pool (DIPSI; De Clercq et al., 2006; Reardon & Tackett, 2018; Verbeke & De Clercq, 2014).

Personality and Temperament

Personality traits were measured using the Neuroticism, Conscientiousness, and Agreeableness scales of the Inventory of Children's Individual Differences (ICID; Halverson et al., 2003), the ICID-Short Form (Deal et al., 2007), the Big Five Inventory (BFI; John et al., 1991), and the Big Five Inventory-2 (Soto & John, 2017). Temperament was measured using the Negative Affectivity and Effortful Control scales of the Early Adolescent Temperament Questionnaire (EATQ; Ellis & Rothbart, 2001) and the Temperament in Middle Childhood Questionnaire (TMCQ; Simonds & Rothbart, 2004). All of the above traits were selected from

their broader five- (personality) and three-factor (temperament) model frameworks due to their established relationships with relational aggression. While extraversion, openness, and surgency may have relationships with externalizing psychopathology broadly, these findings are somewhat less consistent than those of other trait domains (e.g., Kotov et al., 2017).

Interpersonal Functioning

Interpersonal functioning was measured using the Social Problems and Social Competencies total scores from the CBCL and YSR (Achenbach & Rescorla, 2001), the Friendship Quality Questionnaire total score (FQQ; Parker & Asher, 1993), the Good and Bad Friends scores from the Friends questionnaire (Munholland, 1996), and the Prosocial Behavior subscale of the CSBS (Crick & Grotpeter, 1995).

Other

Life satisfaction was measured using a 3-item version of the Satisfaction with Life Scale (Diener et al., 1985); the parent-report version of this instrument was adapted to reflect child (rather than self-report) subjective life satisfaction. Life stress was measured using the Non-Independent Non-Family subscale of a questionnaire-adapted (checklist) version of the Life Events Questionnaire (Billig et al., 1996; Kushner & Tackett, 2017). This scale measures stressful life events that are likely to be influenced by youth behavior and that happened to the individual, not the family (e.g., child legal problems, friend issues).

Internal consistency (Cronbach's alpha) for external validity measures (including trait, psychopathology, and social developmental measures) ranged from .19 to .98 within each sample. Cronbach's alpha for those scales evidencing within-sample internal consistency below .70 (SRQ RAgg alpha = .58 in Study 1, Wave 3 and BFI-1 Agreeableness alpha = .67 in Study 3,

Wave 1 and .19 in Study 6¹) was found to be sufficient in the pooled sample, (alphas .71 for SRQ RAgg and .72 for BFI-1 Agreeableness). Life events (LEQ) scales showed expectedly lower reliability as they were based on a checklist and not intended to hang together as a unitary factor (alphas .20 to .56). All were judged to meet criteria for acceptable reliability to be included in our analyses. Full reliability results for these measures are included in supplemental material on the OSF page for this project.

Data Analytic Plan

Analyses were conducted using base R and the “lavaan” and “psych” packages of R statistical software (R Core Team, 2020; Revelle, 2019; Rosseel, 2012). The amount of missing data was 49.33% for parent-report and 39.54% for youth-report, due primarily to non-overlapping measures in each sample and thus consistent with definitions of Missing at Random and Missing Completely at Random (Little & Rubin, 2014). CSBS RAgg was administered in all samples (see Tables 1 and 2 for a breakdown of subsample sizes by measure and study).

Reliability

We first evaluated multiple indices of internal consistency of the CSBS RAgg scale: Cronbach’s alpha (Cronbach, 1951), the average inter-item correlation (AIC; Cortina, 1993), and the distribution of split-half reliabilities (Revelle & Condon, 2019). We then analyzed test-retest reliability using only longitudinal samples. These analyses are reported as Pearson correlations between adjacent timepoints (e.g., T1 and T2) and more distal timepoints (e.g., T1 and T4). We also evaluated the continuous effect of time between collection waves (measured in days) on the test-retest reliability of CSBS RAgg in a multiple regression model. Interrater reliability was indexed by the Pearson correlation between parent- and youth-reported CSBS RAgg.

¹ This administration of the BFI only includes $n = 24$ participants; the BFI-2 was substituted partway through data collection.

Structural Validity and Measurement Invariance

We evaluated the unidimensionality of CSBS RAgg using confirmatory factor analysis. Maximum likelihood estimation with robust standard errors was used, as CSBS RAgg data were skewed (see descriptives on the OSF page). Full Information Maximum Likelihood was used to account for missing data. We estimated a model in which all CSBS RAgg items were allocated to a single factor. Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values of .95 or greater were interpreted to reflect good fit, while values above .90 were interpreted to reflect adequate fit. Root mean square error of approximation (RMSEA) values below .06 were interpreted to reflect good fit while values of .10 or below were interpreted to reflect adequate fit. Standardized Root Mean Square Residual (SRMR) values below .06 were interpreted to reflect good fit (Browne & Cudeck, 1992). We also estimated IRT parameters from factor analyses (see Kamata & Bauer, 2008) corresponding to a 2-parameter Graded Response Model (Samejima, 1969) to examine CSBS RAgg item difficulty (or location), discrimination, and information.

We then examined measurement invariance in the same individuals across time (i.e., temporal invariance) as well as between groups (i.e., invariance across gender, race/ethnicity, and age group; Meredith, 1993). All models were tested using a free baseline strategy (see Supplemental Materials for details; Stark et al., 2006). We considered the following indices to indicate a significant decrement in fit: $\Delta\text{RMSEA} > .015$, $\Delta\text{CFI} > .01$, $\Delta\text{TLI} > .01$ (Chen, 2007). We also incorporate evidence from chi-square difference tests, though it was expected that the majority of these tests would be significant at $\alpha < .05$ given the sample size examined here.

External Validity

Convergent, discriminant, and criterion validity were tested via Pearson correlations. Predictive validity was tested using a multiple regression framework, with Time 2 external

variables predicted by Time 1 RAgg and the respective Time 1 external variable, to control for cross-sectional overlap between RAgg and the external variable. Correlations within each timepoint are described as criterion validity analyses, while relationships across timepoints (e.g., Time 1 CSBS RAgg predicting Time 2 variables) are described as predictive validity analyses.

Results

Deviations from the Preregistration

Following data cleaning, the sample size of youth with more than one time point of CSBS data were more limited than we realized ($n = 63$); therefore, we chose not to report test-retest or predictive validity analyses for youth-report as the likelihood of obtaining spurious results was judged to be high. To adhere to the preregistration, these planned analyses are included on the OSF page (<https://osf.io/gpjr9/>), although we urge caution in interpreting these results due to the limited sample size. Second, although we preregistered analyses that would test the overlap between youth-reported CSBS RAgg and SRQ RAgg, this was not possible as youth-reports of these two measures were not collected at the same time point in any study, and we believe that testing between-timepoint relationships between these measures would have limited utility. Third, criterion and predictive results included tests of parent-reported Satisfaction with Life and ICU traits, though these analyses were not preregistered. Fourth, given the variable sample sizes available for external validity analyses including some that were smaller than advisable for structural equation modeling, we report observed (rather than latent) correlations and regressions.

Reliability

Internal Consistency

Cronbach's alpha for parent-report CSBS RAgg was .87, while youth-report was .72. The AIC for parent-report was .58, while youth-report was .34. The distribution of split-half reliabilities for parent- and youth-report can be found in Figure 1. Together, internal consistency for parent-report was judged to be good by multiple metrics, while youth-report was adequate.

Test-Retest Reliability

In the longitudinal pooled sample, the Pearson correlation between CSBS RAgg scores across time was $r(426) = .47$ for parent-report (follow up time $M = 1.83$, $SD = 0.88$ years; range: 0.40 to 4.44 years). As predicted, for the sample of only short-term (i.e., 1-2 year) follow ups, the correlation between CSBS RAgg scores across time for parent-report ($r(221) = .55$) was somewhat stronger relative to that of longer follow ups (i.e., 2+ years).

Time between assessments (in days) did not significantly moderate the association between CSBS RAgg scores over time for parent-report ($\beta[\text{time} \times \text{T1 RAgg}] = -.12$, $p = .445$), however. Further, the association between CSBS RAgg scores between T1 and T2 for parent-report was not attenuated by controlling for time between follow ups and the interaction between time and T1 RAgg scores ($\beta[\text{T1 RAgg}] = .54$, $p < .001$). Together, these results indicated that parent-reported test-retest reliability is moderate or adequate for the CSBS RAgg subscale.

Interrater Reliability

The Pearson correlation between parent- and youth-reported CSBS RAgg was $r(621) = .37$. In accordance with our preregistered hypotheses, these results indicated that interrater reliability between parents and youth for CSBS RAgg was moderate.

Structural or Internal Validity

Test Structure

The fit of the one-factor model of parent-report CSBS RAgg ($N = 3,019$) fit adequately to very well by all metrics (CFI = .99, TLI = .98, RMSEA = .07, RMSEA 90% CI [.06, .09], SRMR = .02). Item loadings ranged from .63 to .86 (see Supplemental Figure 1), well exceeding our preregistered threshold of .30. The fit of the one-factor model of youth-report CSBS RAgg ($N = 1,059$) was excellent by all metrics (CFI = 1.0, TLI = .99, RMSEA = .03, RMSEA 90% CI [.00, .05], SRMR = .02). Item loadings ranged from .49 to .74, exceeding our preregistered threshold.

Item Response Theory Analyses

IRT analyses indicated that all items had relatively similar degrees of discrimination for both parent-report (range [1.01, 2.25]) and youth-report (range [0.71, 1.58]). Item information curves for parent-report CSBS RAgg items can be found in Figure 3. Item information curves were largely the same for youth-report, and these can be found in Supplemental Figure 2. Overall, analyses indicated that across both informants, most items captured a high degree of information at the high ends of the latent construct (Θ [1, 3]), with few items capturing information at the low ends (Θ [-3, -1]). In particular, item 7 (“*When angry at another kid, tries to get other children to stop hanging around with or stop liking the kid*”) had a more extreme location (and captured more information at the highest ends of the construct) for both parent- and youth-report. However, perhaps contrary to expectations, youth-report did not provide more information at lower levels of the trait spectrum than parent-report according to IRT analyses.

Measurement Invariance

The retained measurement invariance models and relative fit statistics for these models can be found in Table 2. Parent-report CSBS RAgg met criteria for strict invariance across genders by all preregistered metrics. Youth-report only met criteria for configural invariance across genders (loading model $\Delta\text{CFI} = .014$, $\Delta\text{TLI} = .019$, $\Delta\text{RMSEA} = .019$), though when tested

for partial invariance, the model in which we constrained all items but item 9 (*“Threaten to stop being another kid’s friend in order to hurt the kid or to get what I want from the kid”*) met criteria for metric invariance. Both parent- and youth-report CSBS RAgg met criteria for strong invariance across racial/ethnic groups. For youth-report, only CFI increased significantly from the metric to the strong model.

Parent-report CSBS RAgg met criteria for strict invariance across age groups by RMSEA and TLI, though CFI increased significantly from the strong to the strict model. Additionally, CFI and TLI increased significantly from the metric to the strong model, though parent-report RAgg met criteria for at least metric invariance by all fit indices. Youth-report CSBS RAgg met criteria for metric invariance across age groups, though RMSEA increased significantly from the configural to the weak model. Parent-report CSBS RAgg met all criteria for strict invariance within the same individuals across time.

External Validity

Convergent and Discriminant Validity

Parent-Report. All convergent and discriminant validity relationships can be found in Figures 3-4. All convergent validity analyses were conducted within informant. Unless otherwise noted, the direction of all associations was consistent with predictions, though there were some small differences in magnitude. A full comparison between predicted and observed magnitudes of external validity associations can be found on the OSF page for this project. Consistent with our preregistration, we describe Pearson correlations between .10 and .19 as “weak,” correlations between .20 and .39 as “moderate,” and .40 and above as “strong.”

Parent-report CSBS RAgg was strongly positively related to SRQ RAgg, FFA RAgg, and CSBS Physical Aggression, and moderately positively related to FFA Overt Aggression. Parent-

report CSBS RAgg was moderately negatively related to CSBS Prosocial Behavior. Parent-report CSBS RAgg was strongly positively related to PSC Externalizing Problems, PSC Internalizing Problems, and DIPSI Disagreeableness. Parent-report CSBS RAgg was moderately positively related to CBCL Externalizing and Internalizing Problems.

Personality convergent-discriminant associations for parent-report CSBS RAgg differed somewhat by the instrument administered. Parent-report CSBS RAgg was strongly positively related to ICID Neuroticism and only weakly positively related to BFI Neuroticism. Parent-report CSBS RAgg was strongly negatively related to ICID Agreeableness and moderately negatively related to BFI Agreeableness. Parent-report CSBS RAgg was weakly negatively related to both ICID and BFI Conscientiousness. Judging by the confidence intervals, these results did not significantly differ by BFI version administered. Among temperament instruments, convergent-discriminant associations also differed by measure. Consistent with personality results, parent-report CSBS RAgg was moderately positively associated with TMCQ Negative Affectivity and strongly positively associated with EATQ Negative Affectivity. Parent-report CSBS RAgg was weakly negatively related to TMCQ Effortful Control and moderately negatively related to EATQ Effortful Control.

Youth-Report. Convergent-discriminant analyses for youth-report CSBS RAgg largely replicated those of parent-report, and as with parent-report, were conducted within-informant. Youth-report CSBS RAgg was strongly positively related to CSBS Physical Aggression and moderately negatively related to CSBS Prosocial Behavior. Youth-report CSBS RAgg was strongly positively related to YSR Externalizing Problems and DIPSI Disagreeableness, and moderately positively related to YSR Internalizing Problems.

Trait analyses indicated that youth-reported CSBS RAgg was moderately positively related to both ICID and BFI Neuroticism. These results differed significantly between BFI versions administered, however, with BFI-1 Neuroticism showing a larger positive relationship with CSBS RAgg ($r(684) = .30$, 95% CI [.23, .37]) than BFI-2 Neuroticism ($r(255) = .17$, 95% CI [.05, .29]). Youth-report CSBS was strongly negatively related to ICID Agreeableness and moderately negatively related to BFI Agreeableness. Youth-report CSBS RAgg was moderately negatively related to ICID Conscientiousness and weakly negatively related to BFI Conscientiousness. Agreeableness and Conscientiousness results did not differ by BFI version judging by the confidence intervals. Temperament measures also showed a somewhat similar pattern with youth-report CSBS RAgg being strongly positively related to EATQ Negative Affectivity and strongly negatively related to EATQ Effortful Control.

Criterion Validity

All within-informant criterion validity results can be found in Figure 5. Point estimates and confidence intervals for cross-informant criterion validity results can be found in Supplemental Table 1. Parent-report criterion analyses were largely consistent with our hypotheses, with select exceptions. Parent-report CSBS RAgg was moderately positively related to parent-report Social Problems (from the CBCL) and weakly positively related to youth-report Social Problems (from the YSR). Parent-reported CSBS RAgg was not related to either parent- or youth-reported CBCL/YSR Social Competencies, however. Parent-report CSBS RAgg was moderately positively related to parent-reported callous-unemotional (ICU) traits, but not related to youth-report ICU traits. Parent-report CSBS RAgg was moderately negatively related to parent-report “Good” Friends (higher RAgg was related to fewer good friends), and moderately positively related to parent-report “Bad” Friends (higher RAgg was related to more bad friends).

Parent-reported CSBS RAgg was not related to youth-reports of Good or Bad Friends or Friendship Quality (FQQ Total Score), however. Parent-report CSBS RAgg was moderately positively associated with parent-report LEQ Non-Independent Non Family Life Events during the past year period, while it was weakly positively associated with parent-report LEQ Non-Independent Non Family Life Events during the whole life period. There were insufficient participants with both parent-reported CSBS and youth-reported LEQ to test cross-informant validity ($n = 84$). Finally, parent-report CSBS RAgg was weakly negatively related to both parent- and youth-report Satisfaction with Life.

Youth-report CSBS RAgg criterion analyses were mostly consistent with our hypotheses and with parent-report criterion analyses. Youth-report CSBS RAgg was moderately positively related to youth-report Social Problems (YSR) and weakly positively related to parent-report Social Problems (CBCL). Youth-report CSBS RAgg was not related to either youth- or parent-reported CBCL/YSR Social Competencies. Youth-report CSBS RAgg was moderately positively related to both parent- and youth-report ICU traits. Youth-report CSBS RAgg was weakly positively associated with youth-report LEQ Non-Independent Non Family Events for the past year and whole life periods, but it was weakly positively related to parent-reported Events during the past year period. Finally, youth-report CSBS RAgg was moderately negatively related to Satisfaction with Life as measured by youth-report, but the sample size was insufficient to test youth CSBS RAgg's association with parent-reported Satisfaction with Life ($n = 73$).

Predictive Validity

As shown in Table 3, the predictive model in which T2 CBCL Social Problems was regressed on T1 CSBS RAgg and T1 CBCL Social Problems indicated that T1 CSBS RAgg was not an incremental predictor ($\beta_{\text{RAgg}} = -.03, p = .582$) of T2 Social Problems. The same was found

for the predictive model for CBCL Social Competencies; CSBS RAgg ($\beta_{\text{RAgg}} = .04, p = .448$) was not an incremental predictor of T2 competencies. The predictive model for ICU Total traits indicated that T1 CSBS RAgg ($\beta_{\text{RAgg}} = .14, p = .042$) incrementally predicted T2 ICU Traits, however, given the relatively small sample size available for this analysis and relatively greater imprecision in this estimate, this finding requires replication. Finally, the predictive model for LEQ Non-Independent Non Family Life Events also showed that CSBS RAgg ($\beta_{\text{RAgg}} = .18, p = .002$) was a significant incremental predictor of youth-influenced life stressors.

Discussion

The present study interrogated the construct of relational aggression – as measured with the Children’s Social Behavior Scale – using a comprehensive multi-stage construct validation approach. Results indicated that the CSBS is a reliable, structurally valid, and informative measure, assessing a relational aggression construct that is supported by a theoretically coherent nomological net incorporating personality traits, other forms of psychopathology, and social developmental outcomes. Our results demonstrated that both parent- and youth-report versions of this questionnaire may be used to validly measure relational aggression across a variety of demographic subgroups, and that relational aggression as measured by the CSBS offers independent predictive validity for some life outcomes. However, our evidence also favored supplementing youth-report with parent-reports wherever possible. We hope that the present study illustrates how a construct validation approach may be applied to existing measures and further contributes to increased uptake of the construct validity process in psychological science.

Reliability

The reliability of CSBS RAgg was measured in three ways in the present study, and all three indices provided robust evidence for consistency across items, time, and informants. First,

to examine internal consistency, Cronbach's alpha for parent-report was well above the threshold typically deemed acceptable for basic research (e.g., Nunnally, 1978). Although the youth-report form fell just below that threshold, it is still in the range of adequate internal consistency.

However, Cronbach's alpha does not speak to the homogeneity or specificity of a scale, which are more appropriately addressed by the AIC (Clark & Watson, 2019). The youth-report AIC falls in the recommended range in general ($[\text{.15}, \text{.50}]$) and within a specific range that might be recommended for intermediate to narrow breadth constructs such as relational aggression (e.g., $[\text{.30}, \text{.50}]$; Clark & Watson, 2019). Notably, the parent-report AIC falls even above this range. The high AIC of CSBS RAgg also supports the hypothesis that relational aggression is a fairly narrow-bandwidth construct covering a specific set of behaviors rather than broad, general tendencies like personality traits. These interpretations were further corroborated by the split-half reliabilities, the distributions of which largely clustered in the adequate to good range. Second, test-retest reliability, or stability, was in the adequate or moderate range for parent-reports. This indicated that CSBS RAgg scores were consistent across time during middle childhood and adolescence by parent-report, and this consistency did not decrease substantially as the length of time between assessments increased up to approximately 4 years. Consistent with relational aggression's positionality within the individual difference space, parent-report relational aggression demonstrated a similar degree of stability to psychopathology (e.g., 1-year r $[\text{.50}, \text{.70}]$; Prinzie et al., 2014), and somewhat lower stability than personality facets in this age range (e.g., 1-year r $[\text{.60}, \text{.80}]$; Brandes et al., in press). These results answer a call for more research estimating the stability of relational aggression across childhood (Casas & Bower, 2018).

Finally, interrater reliability was moderate for CSBS RAgg, supporting two primary interpretations: first, that informants agree on the presence or absence of these behaviors, and

second, that relational aggression is visible, even to parents. While the interrater reliability of relational aggression measures has been significantly understudied in the past, our results address one significant concern about parent informants. Prior researchers and theorists have advocated that “the covert nature of relational aggression may make it especially difficult for parents to recognize...” (Underwood et al., 2018, p. 65). While the results of our IRT analyses indicate that indeed, parents do endorse more severe forms of the behavior when they endorse it at all, the same is true of youth, and the interrater reliability of this scale suggests that parents’ reports largely agree with their children’s. In summary, relational aggression is judged to be quite reliable across all indices examined. However, given the relatively lower reliability of youth-report relational aggression, using multi-informant assessments is advisable where possible.

Structural Validity

The structural validity of CSBS RAgg was also assessed in three ways in the present study, and these tests each provided convergent evidence for a robust unitary factor. First, a one-factor confirmatory model fit well across parent and youth data, with item loadings in both models far exceeding our predicted threshold of .30, indicating a strong relationship between all five items and the latent relational aggression factor. Second, IRT analyses indicated that CSBS items have similar levels of discrimination across parent and youth reports, and that the items are most informative at the high end of the construct as measured by the CSBS RAgg scale.

The final way structural validity was assessed was through a series of measurement invariance models testing invariance across gender, racial/ethnic groups, and age. With regard to gender, parent-report data evidenced strict invariance, indicating that not only is the structure of the measure consistent across males and females, but that it is measuring the same latent factor, and that the amount of item-specific variance is the same across males and females. Youth-report

data evidenced partial metric invariance, however. We did not expect to find even this degree of invariance by gender for parent-reported CSBS given that relational aggression was originally conceived as a stereotypically feminine construct (Crick & Grotpeter, 1995). However, meta-analytic work has not supported that there are differences across gender (Archer & Coyne, 2005). The present work underscores that relational aggression can be validly measured across males and females, and that, when using parent-report but not youth-report data, differences in item means can be assumed to be due to actual differences in factor mean differences. When using youth-report, our data also suggest that relational aggression is mostly manifested the same way across gender, but that response styles may vary across males and females.

With regard to racial/ethnic groups, parent-report data evidenced strong invariance, indicating that all but factor residuals function the same across all groups examined. Youth-report data also evidenced strong invariance by some metrics. This variation across metrics speaks to the complicated nature of evaluating measurement invariance, and it leaves open the possibility that different investigators may come to different conclusions depending on their approach. Because the validation sample for the CSBS was predominantly White, the present study represents the first time the construct validity of relational aggression has been investigated between racial/ethnic groups, and it provides preliminary evidence that the CSBS is measuring the same latent factor across groups. There is some evidence indicating differences in the prevalence of relational aggression across racial/ethnic groups (Putallaz et al., 2007; Rivera-Maestre, 2015); the present results suggest that these differences in prevalence are not primarily attributable to differences in measurement functioning. The meaning of these group differences is an important and open question for future research in relational aggression.

Finally, with regard to age, parent-report data evidenced strict invariance by some indices, and metric invariance by others. Youth-report data evidenced metric invariance. Data in the present study spanned a wide age range (from approximately 6 to 18 years in parent report), thus providing the opportunity to examine whether the CSBS RAgg scale functions differently across development. Many changes relevant to relational aggression, such as the development of more complex peer groups (Steinberg & Sheffield Morris, 2001), the beginning of romantic relationships (Baams et al., 2015), and increased sensitivity to social rewards (Steinberg, 2008) happen across this period. The timing of these shifts suggests that there are multiple factors that might cause a measure to function differently for older versus younger children. The present results suggest that, at a minimum, the same latent factor is being measured across this broad age range; however, there are likely some items that function differently between age groups. This is in line with prior work suggesting that the manifestations of relational aggression may change over the course of development (Crick et al., 1999; Murray-Close & Ostrov, 2009). Combined with the IRT and the test structure results, measurement invariance analyses suggest the CSBS RAgg scale has remarkably good structural validity across a variety of demographic groups.

External Validity

The external validity of CSBS RAgg was investigated through both parent- and youth-reports of additional variables capturing individual differences, psychopathology, and social development. In these analyses, our expectations that CSBS RAgg would be moderately to strongly associated with externalizing psychopathology and antagonistic forms of personality pathology were largely supported. However, we also found that CSBS RAgg was moderately to strongly associated with internalizing psychopathology (parent r [.25, .54], youth $r = .29$), which was a more robust relationship than we hypothesized. Among individual differences, relational

aggression was positively related to trait negative affectivity/neuroticism to a moderate to strong degree (r [.28, .49]) aside from parent-report BFI Neuroticism ($r = .18$); negatively related to agreeableness to a moderate to strong degree (r [-.55, -.22]); and negatively related to conscientiousness and effortful control ranging from a weak to strong degree (r [-.44, -.15]).

These results are consistent with the broader literature that places relational aggression in close connection to both externalizing (Tackett et al., 2013; Tackett, Kushner, et al., 2014) and internalizing (Marshall et al., 2015; Tackett & Ostrov, 2010) psychopathology. Further, the present study may be interpreted in the context of prior research suggesting that relational aggression is a salient developmental precursor to narcissistic and borderline personality disorders (NPD and BPD; e.g., Crick et al., 2005; Reardon et al., 2018, 2020). While disinhibited and antagonistic personality disorders are most often associated with externalizing features as well as (low) conscientiousness and agreeableness (e.g., Widiger et al., 2016), our results indicate that relational aggression, like NPD and BPD, may also have internalizing or neurotic features. While associations between trait negative affect and BPD are relatively undisputed in the literature (e.g., Samuel et al., 2013), connections between NPD and neuroticism are historically inconsistent. Narcissism is a multifaceted construct with two primary subdimensions: grandiosity and vulnerability (e.g., Edershile et al., 2019). While grandiosity is largely separate from neuroticism, vulnerability is highly overlapping with neuroticism (Miller et al., 2018). If relational aggression is to be understood as a developmental precursor to NPD and BPD given the broader literature on this topic, the present study points to a need for future research to examine how subdimensions of personality disorder (e.g., grandiosity vs. vulnerability) may be differentially associated with relational aggression. Future research on this topic may help bridge disparate domains of research on relational aggression and personality pathology.

Finally, the results of the present study indicate that relational aggression is a concurrent and prospective risk factor for multiple negative life outcomes, and they do not clearly indicate that relational aggression is, on its own, socially or psychologically advantageous in middle childhood and adolescence (e.g., Cillessen & Mayeux, 2004; Rose et al., 2004). Specifically, we found that increased relational aggression was associated with more concurrent social problems, greater engagement with “bad” peer groups, lower life satisfaction, and more non-independent (i.e., elicited) negative life events, or stressors. In addition, we recovered preliminary evidence that relational aggression incrementally predicts future negative life outcomes including the development of callous-unemotional traits and elicitation of negative life events. Intriguingly, these analyses indicated that relational aggression was neither an indicator of increased social competence nor an indicator of universal deficits in social functioning. Further, while parents and youth agree that youth who are more relationally aggressive have more “bad” friends who act out, parents also perceive that their relationally aggressive children have few “good” friends who behave well and maintain high social status. Relationally aggressive youth, however, do not report that they have any more *or* fewer high-status or high-achieving friends.

Limitations & Constraints on Generality

Despite its strengths, the present study also has several limitations. First, the present study was limited to a single, focal questionnaire measure, the Children’s Social Behavior Scale (Crick & Grotpeter, 1995). Some researchers have expressed concerns about measuring relational aggression via questionnaire (Underwood et al., 2018), given that relational aggression is not a socially desirable behavior. While the present study tested the convergence between the CSBS RAgg scale and an interview-based measure of relational aggression, the ongoing construct validation of relational aggression would benefit from the incorporation of alternative

measures of relational aggression (e.g., observer ratings, behavioral task performance). This future direction would address concerns about shared response biases and other method effects. Second, the present study used ratings by only two informants—parents and youth. These informants may share certain biases (e.g., social desirability) that may be less influential for other raters (e.g., teachers, peers). Despite this, parent- and youth-reports have strong advantages, including ease of collection, access to detailed information about youth functioning that more distal raters may not possess, and good generalizability as these are the most frequent reports collected in applied (e.g., clinical) settings. Third, the present study pooled data across six samples that each completed a different set of our external validity measures. As such, we had to harmonize measures across several different forms in some cases, and some measures had relatively large amounts of missing data. However, we determined that these costs were outweighed by the benefits of data pooling using archival samples—namely, our ability to maximize the overall sample size and the breadth of external validity measures included. Future studies replicating the present results, particularly for our measures with large amounts of missingness, are needed.

The present study examined individuals across multiple demographic groups. Thus, these results can be reasonably generalized to youth between the ages of 6-18 years belonging to a variety of groups across race/ethnicity, gender, socioeconomic status, and geographic region. However, our samples were predominantly sourced from North America, and location information was not collected for online-only participants. All respondents were also English-speakers drawn from the general population, save for a very limited number of Spanish-speakers. We cannot assume that the present results would generalize to groups other than the ones examined here (e.g., adults, non-North American samples, clinical or forensic populations).

Conclusions

Relational aggression is a set of behaviors that has become the focus of a small but targeted research area within social, developmental, and clinical psychology, particularly during middle childhood and adolescence. Here, we find that relational aggression as measured by the CSBS demonstrates strong construct validity through robust reliability and structural validity, robust and coherent connections with individual differences and psychopathology, and the prediction of important life outcomes. In particular, we found continued evidence connecting relational aggression to measures of externalizing (and to a slightly lesser extent, internalizing) psychopathology, general personality, and personality pathology in the nomological space, as well as to several negative life outcomes. We end with a strong recommendation that other researchers will adapt a similar construct validity approach to their own areas of research. While construct validation is too often neglected in the psychological literature, here we demonstrate that not only is it possible to undertake this work with existing measures, but that archival datasets may be leveraged to efficiently tackle these questions outside of standalone measurement validation projects.

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Table 1

Demographics and Relevant Procedures by Sample

Characteristic	Study 1	Study 2	Study 3	Study 4	Study 5	Study 6
Total N	440	491	317	195	1350	304
Years Collected	2007-2013	2008-2011	2012-2015	2014-2017	2016-2018	2016-2019
Demographics						
Youth Age: M (SD)	10.48 (1.23)	12.85 (3.54)	9.97 (0.98)	12.67 (3.13)	10.40 (3.42)	15.46 (1.49)
Youth Gender (% Female)	50.7	53.2	53.6	54.4	48.0	50.7
Youth Race/Ethnicity (% White/Caucasian)	67.4	68.6	32.9	65.8	60.1	60.8
Informant (% Mother)	85.7	74.0	98.1	84.2	88.3	81.2
Procedures						
Recruitment Source	Flyers & Participant Pool	Flyers & Participant Pool	Flyers & School Directory	School Directory	mTurk & Insighta	mTurk
Geographic Region	Metro, SE Ontario, CA	Metro, SE Ontario, CA	Metro, SE Texas, USA	Metro, SE Texas, USA	Not Collected	Metro, NE Illinois, USA
Survey Modality	In-lab/Mail	In-lab/Mail	In-lab	Online	Online	Online
Compensation	CAD \$; gifts	Gift card; CI Credit ^a	Gift Card	Gift Card	Variable ^b	mTurk HIT
Ethics						
IRB/REB	UT	UT	UH/NU	UH	NU	NU
Study Title	Child Personality and Behavioral Outcomes Study	Developmental Pathways of Psychological and Biological Factors for Callous Unemotional Traits and Aggression in Adolescents	Child Personality and Behavioral Outcomes Study	Personality Development and Academic Outcomes	A Validation of the Dimensional Personality Symptom Itempool-Short Form (DIPSI-SF)	The Game Changers Study
Protocol Number	19353	25670	12443-02/ 00202367	14126-02	00202599	00203160

Note. ^a CI Credit: Interested high school students were offered credit toward Ontario Secondary School Diploma community involvement

requirements. ^b Compensation differed between platforms and versions of the survey administered. IRB = Institutional Review Board (USA); REB

= Research Ethics Board (Canada); UT = University of Toronto; UH = University of Houston; NU = Northwestern University.

Table 2

Measure Descriptions and Reliabilities

Measure	N Items	Item Scale	Parent-Report Pooled N	Youth-Report Pooled N	α Range
Aggression					
Children's Social Behavior Scale	13	1-5	3,019	1,059	.65 – .90
Social Relations Questionnaire ^a	7	1-4	627	NA	.58 – .75
Forms and Functions of Aggression ^a	36	1-4	296	NA	.84 – .87
Psychopathology					
ASEBA Internalizing & Externalizing Problems	194	0-2	1,616	1,018	.84 – .91
Pediatric Symptom Checklist-17	17	0-2	1,350	NA	.81 – .86
Inventory of Callous-Unemotional Traits	24	0-3	727	491	.80 – .87
Dimensional Personality Symptom Item Pool (DIPSI)	172	1-5	622	633	.92 – .98 ^b
DIPSI Markers Form	96	1-5	469	NA	
DIPSI Short Form	81	1-5	1,350	NA	
Personality & Temperament					
Inventory of Children's Individual Differences (ICID)	144	1-7	703	NA	.73 – .92 ^b
ICID Short Form	50	1-7	1,847	491	
Big Five Inventory	44	1-5	793	687	.19 ^c – .92 ^b
Big Five Inventory-2	60	1-5	274	257	
Early Adolescent Temperament Questionnaire	62	1-5	644	189	.86 – .89
Temperament in Middle Childhood Questionnaire	157	1-5	295	NA	.87 – .93
Social Functioning					
ASEBA Social Problems	11	0-2	1,138	516	.69 – .79
ASEBA Social Competencies	6	Varies ^d	1,104	483	NA ^d
Friendship Quality Questionnaire	21	1-5	NA	633	.88 – .88
Friends	17	1-5	1,331	229	.81 – .92
Other					
Satisfaction with Life	3	1-7	1,513	821	.84 – .95
Life Stressors	49	0-1	589	84	.20 – .56

Note. ^a Indicates interview-based assessments; all others are questionnaires. ^b Indicates range of alpha values across all versions of the measure. ^c In Study 6 alone, this measure version was only administered to $n = 24$ participants, despite that it was administered to $n = 793$ parent informants and $n = 687$ youth in the pooled samples. ^d ASEBA Social Competencies scores consist of multiple different kinds of items, including counts, frequencies, and Likert-scale items, and cannot be represented by single values. This scale was calculated according to the ASEBA manual scoring.

Table 3

Measurement Invariance of CSBS Relational Aggression

Grouping Variable	Invariance Level	$\Delta\chi^2^a$	$p (\Delta\chi^2)$	ΔCFI	ΔTLI	$\Delta RMSEA$
Parent-Report						
Gender	Strict	3.96	0.555	0 ^b	0 ^b	0 ^b
Race/Ethnicity	Strong	31.42	0.050	0.004	0.016	0 ^b
Age Group	Metric	51.26	0.005	0.006	0 ^b	0 ^b
	Strong	136.45	<.001	0.023	0.010	0.010
	Strict	130.18	<.001	0.026	0.005	0.004
Time (Collection Wave)	Strict	9.7	0.842	0.008	0.002	0.003
Youth-Report						
Gender	Metric (partial)	1.54	0.673	0 ^b	0 ^b	0 ^b
Race/Ethnicity	Metric	18.53	0.552	0 ^b	0 ^b	0 ^b
	Strong	28.15	0.106	0.011	0.003	0.002
Age Group	Metric	17.14	0.144	0.004	0.005	0.018

Note. Relative fit indices reflect a comparison between the most constrained model that was retained relative to the previous model

(e.g., for those that achieved strong invariance, differences in fit are reported between metric and strong invariance models). Due to the robust estimator, some scaled global fit statistics show *increased* fit for the more constrained model. Bolded values exceed preregistered thresholds.

^aValues are differences between standard (not robust) statistics, but a Satorra-Bentler scaled chi-square difference test was applied.

^bModel fit evidenced a negligible degree of *improvement*, though this was determined to be due to the use of robust statistics and changes were insubstantial.

Table 4

CSBS Relational Aggression Predictive Validity by Parent-Report

Variable (T1)	<i>B</i>	<i>SE_B</i>	95% <i>CI_B</i>	β	<i>R</i> ²	<i>F</i>
Model 1: ASEBA Social Problems						
Social Problems	.48	.05	[.38, .58]	.57	.31	51.47
CSBS RAgg	-.12	.21	[-.54, .30]	-.03		
Model 2: ASEBA Social Competencies						
Social Competencies	.60	.06	[.49, .71]	.59	.34	55.66
CSBS RAgg	.18	.24	[-.29, .66]	.04		
Model 3: Callous-Unemotional Traits (CU Traits)						
CU Traits	.65	.08	[.49, .81]	.54	.35	40.69
CSBS RAgg	.10	.05	[.00, .19]	.14		
Model 4: LEQ Nonindependent Non-Family Life Events (NINF)						
LEQ NINF	.32	.06	[.20, .44]	.30	.15	25.75
CSBS RAgg	.28	.09	[.11, .45]	.18		

Note. The variable at time point 2 (T2) was regressed on CSBS Relational Aggression (RAgg) at time point 1 (T1) and the variable at T1.

Bolded values indicate $p < .01$.

Figure 1

Distribution of CSBS Relational Aggression Split-Half Reliabilities by Informant

Figure 2

CSBS Relational Aggression Item Information via Parent Report

Note: CSBS = Children's Social Behavior Scale

Figure 3

CSBS Relational Aggression Convergent-Discriminant Correlations with Aggression and Psychopathology For Parent and Youth Informants

Note. SRQ = Social Relations Questionnaire; FFA = Forms and Functions of Aggression; ASEBA = Achenbach System of Empirically Based

Assessment; PSC = Psychiatric Symptom Checklist-17; DIPSI = Dimensional Personality Symptom Item Pool

Ragg = Relational Aggression; Overt Agg. = Overt Aggression; PAgg = Physical Aggression; Int. = Internalizing Problems; Ext. = Externalizing Problems; Disag. = Disagreeableness

Figure 4

CSBS Relational Aggression Convergent-Discriminant Associations with Trait Measures for Parent and Youth Informants

Note. ICID = Inventory of Children's Individual Differences; BFI = Big Five Inventory; TMCQ = Temperament in Middle Childhood

Questionnaire; EATQ = Early Adolescent Temperament Questionnaire. N = Neuroticism; NA = Negative Affectivity; C = Conscientiousness; EC = Effortful Control; A = Agreeableness.

Figure 5

CSBS Relational Aggression Cross-Sectional Criterion Associations with Life Outcomes for Parent and Youth Informants

Note. ICU = Inventory of Callous-Unemotional Traits; LEQ = Life Events Questionnaire; ASEBA = Achenbach System of Empirically Based Assessment. NINF = Non-Independent Non-Family Life Events; Soc. Prob. = Social Problems; Soc. Comp. = Social Competencies