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# The externalizing spectrum in youth: Incorporating personality pathology

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ABSTRACT

Although personality disorder characteristics are often grouped with externalizing problems in adults, little is known about the extent to which they define the externalizing spectrum in youth. We examined the extent to which personality pathology traits in youth reflected common and specific variance in externalizing problems and explored differentiation of these connections by age. Parents reported on physical aggression, rule-breaking, relational aggression, and personality pathology traits for 1080 youth (48.8% male) ages 6–18 years. Disagreeableness and emotional instability traits were correlated with a general externalizing factor as well as with specific behavioral subfactors. The magnitude of these correlations varied across age, with the highest magnitude evidenced during the developmental periods of greatest prevalence for the specific externalizing behavior subtype. Taken together, these findings suggest that personality pathology is tightly connected with externalizing problems in youth, especially during developmental periods when externalizing problems are common.
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Externalizing behaviors, which include problems such as inattention/hyperactivity, delinquency, and substance use, often emerge in childhood or adolescence (Burt, 2012; Krueger & South, 2009). Despite robust evidence that externalizing problems capture a primary domain of youth psychopathology (Achenbach & Edelbrock, 1978; Lahey et al., 2004), a clear and comprehensive understanding of the externalizing construct in early life has only recently been emerging (e.g., Baker & Heller, 1996; Bezdjian et al., 2011; Witkiewitz et al., 2012). Specifically, the youth externalizing spectrum has typically been defined by physical aggression (Agg) and rule-breaking (RB) behaviors, as defined in the Child Behavior Checklist (Achenbach & Rescorla, 2001). Recent attention has sought to expand this content to relational or indirect aggression (RAgg; Tackett, Daoud, De Bolle, & Burt, 2013) and the current study aims to further this dimension into the domain of personality pathology.

A spectrum conceptualization cuts across related behavioral manifestations (e.g., both psychopathology and personality constructs) that are thought to be quantitatively related, rather than qualitatively distinct (e.g., Widiger & Smith, 2008). Initial support for a spectrum model typically manifests from psychometric studies demonstrating substantial covariation among certain types of behavior, such as the high covariation found for Agg and RB (Achenbach & Rescorla, 2001). Psychometric

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covariation is an important initial test of hypothesized spectrum associations, and has also been used to support inclusion of normal-range personality traits such as agreeableness and conscientiousness in a youth externalizing spectrum (De Bolle, Beyers, De Clercq, & De Fruyt, 2012; Tackett, 2006). More stringent tests of spectrum associations aim to investigate common causal factors underlying personality and psychopathology constructs falling on the same spectrum (e.g., Baker & Heller, 1996; Tackett, Lahey, et al. 2013; Waldman, Rhee, Levy, & Hay, 2001). The present investigation focuses on the first step for inclusion in an overarching externalizing spectrum, and investigates evidence for substantial covariation between hypothesized youth PD traits and youth externalizing problems. This investigation further explores the extent to which such PD traits offer additional explanatory value in interpreting components of the youth externalizing spectrum.

## The role of personality pathology in externalizing problems

Personality pathology (or personality disorder; PD) is a domain of psychopathology that has frequently been studied in relation to externalizing problems in adults, yet remains understudied in youth (Tackett, Balsis, Oltmanns, & Krueger, 2009). Cluster B personality disorders, particularly borderline, antisocial, and narcissistic PDs, have been linked to externalizing problems in youth (Burnette, South, & Reppucci, 2007; Crawford, Cohen, & Brooks, 2001; Crick, Woods, Murray-Close, & Han, 2007; Underwood, Beron, & Rosen, 2011). Such work, however, has been significantly impeded by a lack of attention to early personality pathology in previous research (Paris, 2008). Recent advances in both empirical and theoretical perspectives on youth personality pathology offer a timely opportunity for empirical investigations examining links between youth personality pathology and the externalizing domain.

Advances in youth PD research have converged on an understanding that PD traits emerge in early life, are reliably measured in youth, and show levels of stability comparable to adults (e.g., Cohen, Crawford, Johnson, & Kasen, 2005; De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006; Johnson et al., 2000). In addition, theoretically rich models of the development of personality pathology in childhood and adolescence have emerged for antisocial, borderline, and narcissistic constructs (e.g., Barry, Frick, & Killian, 2003; Barry et al., 2007; Beauchaine, Klein, Crowell, Derbidge, & Gatzke-Kopp, 2009; Crowell, Beauchaine, & Linehan, 2009; Thomaes, Bushman, Stegge, & Olthof, 2008), all of which are encompassed in the current investigation. Thus, it is important to move toward a comprehensive understanding of how these constructs should be conceptualized within the existing youth externalizing framework. Along with these theoretical advances, new measurement tools allow for unprecedented empirical investigations of hypotheses about youth PD that have previously gone unstudied. In the present study, we focus on the Dimensional Personality Symptom Itempool (DIPSI; De Clercq et al., 2006) which is one of the most promising of these PD measures because it was created using a developmentally-based bottom-up approach that allowed constructs to emerge that might be important for child and adolescent, but not adult, populations.

The DIPSI is an empirically derived measure that assesses 27 lower-order facets and four higher-order personality pathology traits in children and adolescents. The higher-order traits—disagreeableness, emotional instability, introversion, and compulsivity—are analogous, but not identical, to similar higher-order PD trait structures in adult measures (e.g., Clark, 1993; Livesley & Jackson, 2009). Disagreeableness (characterized by antagonism and difficulty getting along with others) is the trait with the strongest conceptual links to externalizing behaviors and Cluster B PD domains, and thus represents the best candidate for integration into the youth externalizing spectrum. However, emotional instability (characterized by high levels of negative affect and poor emotion regulation skills), which has typically been linked to internalizing psychopathology and trait neuroticism, is also linked to the borderline PD construct in adults (Eaton et al., 2011). This suggests that it may show secondary links to youth externalizing and the broader Cluster B PDs, as well. In other words, we would expect disagreeableness to show strong robust connections across many types of externalizing psychopathology, whereas emotional instability may show more modest, but still significant connections that are less robust across different externalizing problems. Thus, the current investigation focused only on the disagreeableness and emotional instability DIPSI domains. Specifically, we examined both domains and the facets indexing each of these higher-order traits in order to gain a more nuanced picture of the role that personality pathology plays in the externalizing spectrum.

## Aspects of the youth externalizing spectrum

The externalizing spectrum in youth is typically defined by behavioral subtypes of Agg and RB behaviors, as defined in the Child Behavior Checklist (Achenbach & Rescorla, 2001). Although Agg and RB are typically highly correlated, they show important differences as well (Burt, 2012; Tackett, Daoud, et al., 2013). Their developmental course is one such difference, with Agg showing highest prevalence earlier in childhood whereas RB tends to be highest in adolescence (Burt, 2012; Stanger, Achenbach, & Verhulst, 1997; Tremblay et al., 2004). They have also been differentiated in terms of severity, with researchers suggesting that Agg represents more severe externalizing problems, whereas RB behaviors appear to be more normative, particularly in adolescence (Burt, 2012; Burt & Klump, 2012; Tackett, Balsis, et al., 2009; Tackett, Krueger, Iacono, & McGue, 2005; T`ackett, Daoud, et al., 2013). This pattern of both convergence and divergence across subtypes of youth antisocial behavior (ASB) can be extended to an externalizing spectrum that incorporates RAgg (Tackett, Daoud, et al., 2013).

RAgg—which is similar to social or indirect aggression (Archer & Coyne, 2005)—refers to aggressive behaviors intended to damage another's social status or interpersonal relationships (Crick & Grotpeter, 1996). Although early evidence indicated that RAgg was integrally linked to other forms of externalizing problems in youth (Baker & Heller, 1996; Card, Stucky, Sawalani, & Little, 2008; Tackett, Waldman, & Lahey, 2009), including links to borderline PD in particular

(Crick, Murray-Close, & Woods, 2005), it remains understudied in the broader context of youth externalizing problems. Preliminary evidence suggests that RAgg is best conceptualized as part of the broader externalizing domain in youth (Tackett, Daoud, et al., 2013), which is also supported by research in adults (Burt, Donnellan, & Tackett, 2012; Krueger, Markon, Patrick, Benning, & Kramer, 2007). Such evidence suggests that the domain of youth externalizing problems is broader than previously conceptualized.

RAgg also tends to show moderate to high correlations with Agg and RB, much as Agg and RB show with one another (Card et al., 2008; Tackett, Daoud, et al., 2013). In addition, all three subtypes show the same overall profile in relation to normal-range personality traits: high neuroticism, low agreeableness, and low conscientiousness (Tackett, Daoud, et al., 2013). The developmental trajectory of RAgg has been proposed as distinct from both Agg and RB, such that RAgg is thought to peak in middle childhood/early adolescence (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Underwood et al., 2011; Vaillancourt, Miller, Fagbemi, Côté, & Tremblay, 2007). In addition, much like RB, RAgg has been conceptualized as a potentially more normative form of youth ASB and may be more susceptible to environmental influences such as peer deviance (Burt, 2012; Dijkstra, Berger, & Lindenberg, 2011; Tackett, Waldman, et al., 2009). To the extent that certain subtypes of ASB are normative in adolescence, we might expect less evidence of connections with underlying pathological traits. That is, the normative hypothesis for RB and RAgg might suggest that connections with personality pathology in adolescence should be minimized as increased rates of these behaviors should be found in many youth without underlying pathology. This implication is related to findings that both RB and RAgg may not show incremental validity in predicting impairment and may even be associated with indices of adjustment (Keenan, Coyne, & Lahey, 2008; Moffitt, 1993; Preddy & Fite, 2012; Prinstein, Boergers, & Vernberg, 2001). Thus, evidence for the normative hypothesis was investigated in the current study.

## The present study

The primary goal of the present study was to investigate relationships between disagreeableness and emotional instability personality pathology traits with general and specific types of youth externalizing problems. It was hypothesized that disagreeable traits would show the strongest connections with general externalizing problems, and that emotional instability traits would show smaller, but still significant connections with youth externalizing. Regarding specific subtypes, it was hypothesized that specific variance in Agg would show largely undifferentiated connections with PD traits given its salience in defining overall externalizing problems in youth (Burt, 2012; Tackett, Daoud, et al., 2013), that specific variance in RB would show few, if any, connections with PD traits given its largely normative trajectory in youth (Burt, 2012), and that specific variance in RAgg would show connections with PD traits, particularly those reflecting the borderline construct (Crick et al., 2007; Eaton et al., 2011). Additional analyses were conducted to examine potential changes in these relationships across age, drawing from the normative hypothesis, which implies that pathology (and, potentially, pathological associations) would be more difficult to detect during developmental periods when specific behaviors are more normative.

## Method

### *Participants*

Participants were caregivers of 1080 children (48.8% male, $n = 527$) recruited from an urban area in Ontario, Canada. These youth represent a combined sample from two studies at the University of Toronto. The first study recruited parents with children ($n = 345$) ages 9–10 years ($M = 9.97$, $SD = 0.83$), and the second study recruited parents with children ($n = 735$) ages 6–18 years ($M = 11.25$, $SD = 3.65$). Most participants were recruited through a database of families interested in participating in research and through posted advertisements. In the second study, some of the participants ($n = 273$) were recruited by undergraduate students as part of a course assignment. The combined sample included information on 1080 children aged 6–18 years ($M = 10.85$, $SD = 3.10$) from 995 families. Information from the mother was used if it was available ($n = 904$), and for the remaining cases, father report was used ($n = 176$). In the combined sample, 47% of parents indicated that their children were of European descent, 12% Asian, 11% other, 2% African Canadian, and 1% Latino. 26% of participants did not specify their children's race or ethnicity.

### *Measures and procedure*

#### *Externalizing behavior*

Parents completed the Child Behavior Checklist for ages 6–18 (CBCL; Achenbach & Rescorla, 2001). The CBCL is a 118-item questionnaire that describes many common problem behaviors. Respondents rated each item on a three-point scale in terms of how much the item described their child in the past six months (0 = *not true (as far as you know)* and 2 = *very true or often true*). The Aggressive Behavior (Agg) and Rule-Breaking (RB) Behavior subscales were used in the present study. The 18-item Agg subscale showed adequate internal consistency in the present sample ($\alpha = .87$), as did the 17-item RB subscale ($\alpha = .73$). Parents also completed the 13-item Children's Social Behavior Scale (CSBS; Crick, 1996). Respondents rated each CSBS item on a five-point scale (1 = *not true* and 5 = *almost always true*). The 5-item relational aggression subscale (RAgg) was used in the present study, which showed adequate internal consistency in this sample ($\alpha = .75$).

*Personality pathology*

Personality pathology traits were assessed using the Dimensional Personality Symptom Itempool-English language version (DIPSI; Tackett & De Clercq, 2009). The DIPSI consists of 172 items that assess 27 lower-order facets, as well as four higher-order traits (Disagreeableness, Emotional Instability, Introversion, and Compulsivity). As noted previously, only the Disagreeableness and Emotional Instability domains and facets were examined (readers should refer to De Clercq et al., 2006, for extensive descriptive information about the lower-order facets of this measure). Alphas for these traits in the combined sample were excellent: DIPSI Disagreeableness $\alpha = .96$, and DIPSI Emotional Instability $\alpha = .95$. For information regarding Alphas for lower-order facets in this sample, see Table 1.

*Procedure*

Parents completed questionnaires either at home (study 1 and 2) or in the lab (study 2). In both studies, these questionnaires were collected as part of larger protocols for which the participants were compensated monetarily (study 1), with a gift card (study 2), or with course credit for the student collecting data (study 2). Both studies were approved by the Research Ethics Board at the University of Toronto. Before data collection began, all participants provided informed consent. Missing data were present across both studies, primarily due to use of a planned missing data design in study 2 (Graham, Hofer, & MacKinnon, 1996; see also Tackett, Daoud, et al., 2013). Specifically, as part of the missing data design, all participants completed the CBCL; participants were randomly assigned to complete remaining questionnaires [including the DIPSI ($n = 415$) and the CSBS ($n = 379$)] based on a coin toss. Thus, these data were missing completely at random by design. In addition, the DIPSI was not administered in study 1. However, given that participants from both studies were drawn from the same population, and in line with the planned missing data in study 2, missing data on all study variables were imputed using the Expectation Maximization algorithm in SPSS.

## Results

The present study utilized a new bifactor model of externalizing behaviors (see Fig. 1), which captures common externalizing variance as well as specific behavioral subfactor variance (i.e., variance in Agg, RB, and RAgg; Tackett, Daoud, et al., 2013). Specifically, we examined the extent to which personality pathology traits in youth were associated with both common and specific variance in externalizing problems as defined by this bifactor model. In a previous study using the same dataset, this bifactor model was fitted to Agg parcels, RB parcels, and RAgg items and was shown to represent the data well (CFI = 0.94, RMSEA = 0.04, SRMR = 0.04). Specifically, the range of factor scores for the subtypes of externalizing problems on the General Factor were as follows: Agg parcels ranged from .58 to .74, RB parcels ranged from .27 to .72, and RAgg items ranged from .28 to .39. Thus, factor scores from this final model were utilized in the present study to index general externalizing variance, specific Agg variance, specific RB variance, and specific RAgg variance in relation to DIPSI personality pathology traits.

Pearson correlations revealed associations between DIPSI Disagreeableness and Emotional Instability domains and facets and the bifactor model factor scores (see Table 1). As expected, the general externalizing factor was significantly correlated with all personality pathology domains and facets, but these correlations were higher, on average, for Disagreeableness facets ($M_r = 0.63$) than they were for Emotional Instability facets ($M_r = 0.38$). In addition, all facets of both Disagreeableness and Emotional Instability were significantly associated ($p < .001$) with specific Agg. Fewer connections emerged for specific RB (4/22 significant correlations at $p < .01$) and RAgg (13/22 significant correlations at $p < .01$). The highest connections for specific RB were with resistant traits ($r = 0.15$, $p < .001$) and risk-taking traits ($r = 0.13$, $p < .001$). The highest connections for specific RAgg were with dominance-egocentrism traits ($r = 0.20$, $p < .001$) and narcissistic traits ($r = 0.20$, $p < .001$). In addition to Pearson correlations, partial correlations were also conducted to ensure that the associations displayed were not due to associations between Emotional Instability and Disagreeableness domains. The overall pattern of results remained the same; results of these analyses are available from the first author on request.

Additional analyses were conducted to explore whether these relationships manifested differently across development. Given the large number of potential relationships to explore, we chose to focus on three exemplary facets for each ASB subfactor from the Disagreeableness domain. The exemplary facets were chosen based on the largest differences in association between older and younger children in split halves of the sample by age, to illustrate the overall pattern of results (these analyses are available from the first author on request). Age-based analyses were then conducted to test the normative hypothesis that the association between the Disagreeableness domain and each facet and externalizing subtype would show linear (Agg and RB) or quadratic (RAgg) moderation based on age. Analyses were conducted independently by the Disagreeableness domain and each facet, such that the three exemplary facets served as replications of potential age effects within the domain. Hierarchical regression analyses were conducted: Step 1 included gender, age, and the two externalizing subfactors that were not being predicted, Step 2 included either the Disagreeableness domain or one of the exemplary facets, and Step 3 included the interaction term for the domain or exemplary facet by age. To test for quadratic effects, the regressions were extended: Step 4 included the quadratic age term and Step 5 included the interaction term for the domain or exemplary facet by the quadratic age term. Results of the regression analyses are summarized in Table 2. Linear age-based moderation was found for the prediction of specific Agg and specific RB by personality pathology. There was no significant linear age-based moderation by the Disagreeableness domain for the prediction of specific RAgg. Alternatively, quadratic age-based moderation was found for the prediction of specific RAgg by personality pathology.

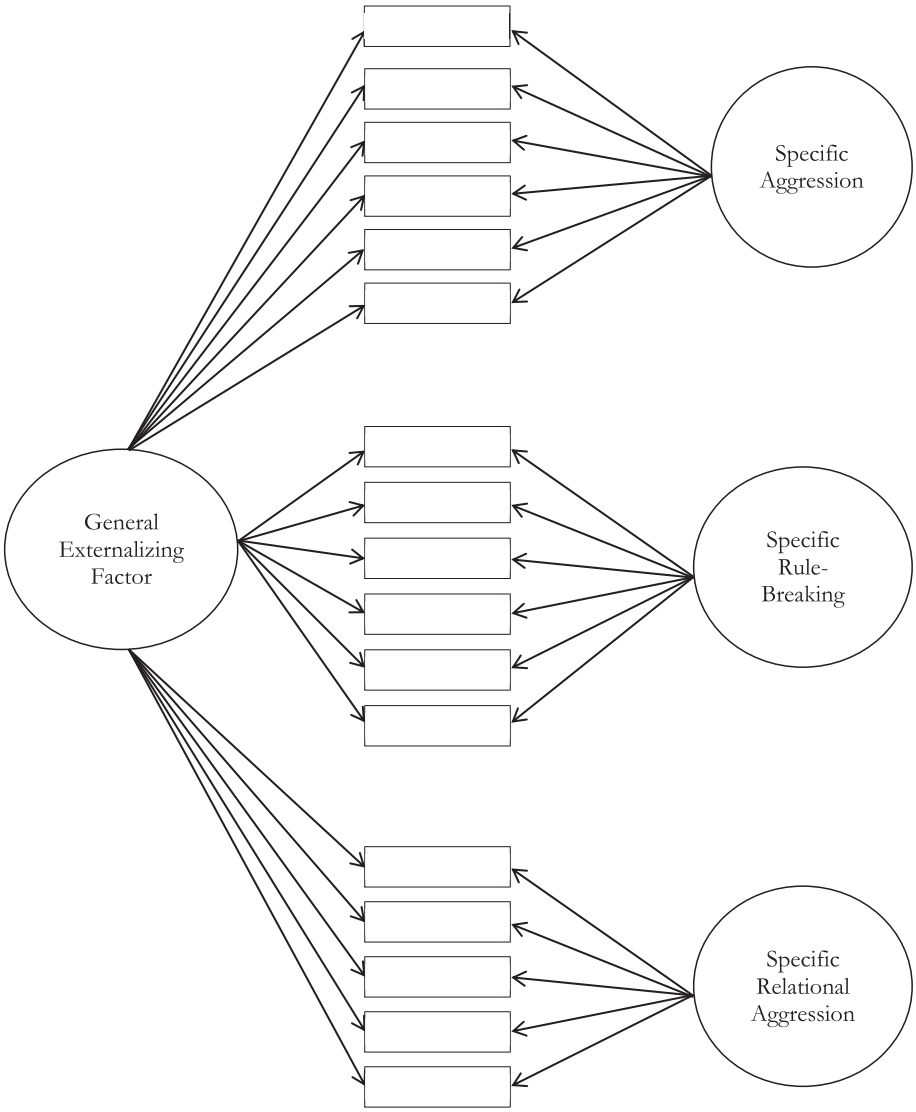


**Fig. 1.** Bifactor model of youth externalizing behavior. Rectangles represent items/item parcels defining each subtype. Adapted from Tackett, Daoud, et al. (2013).

The significant linear age interactions were probed with simple slope analyses at 1 SD below and above the mean age using Hayes' (2013) PROCESS modeling (see Fig. 2). For specific Agg, the exemplary facet slopes were significant at both younger and older ages (for lack of empathy, at younger ages: $b = 0.09$, $t(1073) = 7.10$, $p < .001$ and at older ages: $b = 0.05$, $t(1073) = 5.75$, $p < .001$; for irritable-aggressive traits, at younger ages: $b = 0.16$, $t(1073) = 17.42$, $p < .001$ and at older ages: $b = 0.12$, $t(1073) = 15.58$, $p < .001$; and for affective lability, at younger ages: $b = 0.18$, $t(1073) = 18.98$, $p < .001$ and at older ages: $b = 0.13$, $t(1073) = 17.78$, $p < .001$). For specific RB, the Disagreeableness domain and exemplary facet slopes were significant only at older ages (for Disagreeableness: $b = 0.03$, $t(1073) = 7.64$, $p < .001$; for impulsivity: $b = 0.02$, $t(1073) = 6.52$, $p < .001$; for risk taking: $b = 0.03$, $t(1073) = 8.16$, $p < .001$; for resistance: $b = 0.03$, $t(1073) = 10.75$, $p < .001$). The significant quadratic age interactions are also plotted in Fig. 1, illustrating the extent to which the association between specific RAgg and the Disagreeableness domain and exemplary facets changes across age. Taken together, these findings suggest differential findings by age that are specific to each behavioral subtype.

## Discussion

The present study expanded an existing model of youth externalizing problems (Tackett, Daoud, et al., 2013) to the domain of adolescent personality pathology. Specifically, the current findings supported the hypothesis that trait Disagreeableness (as assessed via an omnibus measure of youth personality pathology) showed high correlations with a general externalizing factor. In addition, as hypothesized, trait Emotional Instability showed moderate correlations with a general externalizing

**Table 1**
Pearson correlations between standardized scores of antisocial behavior factors, disagreeableness and emotional instability personality pathology traits.

| Personality pathology | Number of items | Cronbach's alpha | General and specific antisocial factors | | | |
|---|---|---|---|---|---|---|
| | | | General | Agg | RB | RAgg |
| Disagreeableness | 86 | .97 | ***.76*** | ***.39*** | .05 | ***.13*** |
| Hyperexpressive | 8 | .84 | ***.63*** | ***.38*** | −.06 | ***.13*** |
| Hyperactive | 7 | .79 | ***.65*** | ***.40*** | −.01 | .01 |
| Dominance-egocentrism | 8 | .84 | ***.65*** | ***.33*** | −.02 | ***.20*** |
| Impulsivity | 4 | .81 | ***.72*** | ***.31*** | .04 | .03 |
| Irritable-aggressive | 9 | .90 | ***.72*** | ***.52*** | .05 | *.07* |
| Disorderliness | 8 | .85 | ***.51*** | ***.17*** | **.08** | **.09** |
| Distraction | 7 | .85 | ***.55*** | ***.27*** | .05 | *.08* |
| Risk taking | 6 | .82 | ***.62*** | ***.18*** | ***.13*** | ***.12*** |
| Narcissistic | 8 | .82 | ***.47*** | ***.20*** | −.01 | ***.20*** |
| Affective lability | 6 | .87 | ***.66*** | ***.55*** | *.07* | ***.12*** |
| Resistance | 5 | .78 | ***.78*** | ***.22*** | ***.15*** | ***.12*** |
| Lack of empathy | 10 | .83 | ***.65*** | ***.22*** | .03 | ***.18*** |
| Emotional instability | 52 | .96 | ***.46*** | ***.42*** | .04 | ***.11*** |
| Dependency | 5 | .80 | ***.46*** | ***.38*** | .02 | .02 |
| Anxious | 7 | .86 | ***.35*** | ***.40*** | .02 | .02 |
| Lack of self-confidence | 4 | .80 | ***.42*** | ***.38*** | *.08* | *.07* |
| Insecure attachment | 4 | .65 | ***.23*** | ***.31*** | .01 | ***.12*** |
| Submissiveness | 8 | .84 | ***.28*** | ***.25*** | .05 | *.06* |
| Ineffective coping | 8 | .89 | ***.53*** | ***.50*** | .02 | ***.15*** |
| Separation anxiety | 3 | .74 | ***.30*** | ***.21*** | *.07* | *.08* |
| Depressive traits | 4 | .73 | ***.50*** | ***.37*** | **.09** | ***.17*** |
| CBCL Agg | 18 | .87 | | | | |
| CBCL RB | 17 | .73 | | | | |
| CSBS RAgg | 5 | .75 | | | | |

*Note.* CSBS = Children's Social Behavior Scale (Crick, 1996); Agg = Aggressive Behavior; RB = Rule-Breaking Behavior; RAgg = Relational Aggression.
***p < .001*** in bold and italics, **p < .01** in bold, *p < .05* in italics.

factor, positioning this trait as clearly relevant for youth externalizing problems but less central than trait Disagreeableness. Thus, trait Disagreeableness showed the strongest covariation with the overall externalizing spectrum, providing an important initial test of an externalizing spectrum model that incorporates personality pathology in youth. Specific variance in behavioral subtypes of externalizing (Agg, RB, and RAgg) showed differential profiles of association with youth personality pathology. Specific variance in Agg showed associations with all Disagreeableness and Emotional Instability facets, whereas specific RB showed connections to traits reflecting oppositionality and risk-taking, and specific RAgg showed connections to traits reflecting social dominance and narcissism. These findings suggest that Agg is strongly related to personality pathology facets in the same (robust and undifferentiated) manner as the general externalizing factor, supporting the idea that Agg may represent the most severe, or most central, variant of youth externalizing (Burt, Donnellan, Iacono, & McGue, 2011). The

**Table 2**
Hierarchical regressions predicting specific antisocial behavior subfactors from disagreeableness personality pathology domain/facet × age interactions.

| Interaction terms | *b* | SE | 95% CI | *β* | $R^2$ | *F* |
|---|---|---|---|---|---|---|
| *Dependent variable: Agg* | | | | | | |
| Disagreeableness × Age | −0.01 | 0.01 | [−0.02, 0.00] | −.04 | .22 | 51.48*** |
| Irritable-aggressive × Age | −0.02 | 0.01 | [−0.03, −0.01] | −.09*** | .36 | 98.37*** |
| Affective lability × Age | −0.02 | 0.01 | [−0.03, −0.01] | −.10*** | .40 | 118.64*** |
| Lack of empathy × Age | −0.02 | 0.01 | [−0.03, −0.00] | −.08* | .12 | 24.13*** |
| *Dependent variable: RB* | | | | | | |
| Disagreeableness × Age | 0.01 | 0.00 | [0.01, 0.02] | .16*** | .11 | 21.33*** |
| Impulsivity × Age | 0.01 | 0.00 | [0.01, 0.02] | .17*** | .10 | 19.22*** |
| Risk-taking × Age | 0.01 | 0.00 | [0.01, 0.02] | .16*** | .11 | 22.45*** |
| Resistance × Age | 0.02 | 0.00 | [0.02, 0.02] | .25*** | .16 | 33.20*** |
| *Dependent variable: RAgg* | | | | | | |
| Disagreeableness × $Age^2$ | −0.04 | 0.01 | [−0.07, −0.02] | −.17*** | .05 | 6.32*** |
| Lack of empathy × $Age^2$ | −0.03 | 0.01 | [−0.06, −0.01] | −.12* | .06 | 7.74*** |
| Dominance-egocentrism × $Age^2$ | −0.05 | 0.01 | [−0.07, −0.02] | −.19*** | .08 | 11.03*** |
| Irritable-aggressive × $Age^2$ | −0.03 | 0.01 | [−0.06, −0.01] | −.14** | .03 | 4.07*** |

*Note.* The full regressions with linear age moderations included gender, age, and the two externalizing subfactors that were not being predicted at Step 1, as well as the main effect for the domain/facet at Step 2. The full regressions with quadratic age moderations included gender, age, and the two externalizing subfactors that were not being predicted at Step 1, the main effect for the domain/facet at Step 2, the interaction term for the domain/facet by age at Step 3, as well as the quadratic age term at Step 4. CI = Confidence Interval around *b*; Agg = Specific Aggression, RB = Specific Rule-Breaking, RAgg = Specific Relational Aggression.
$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

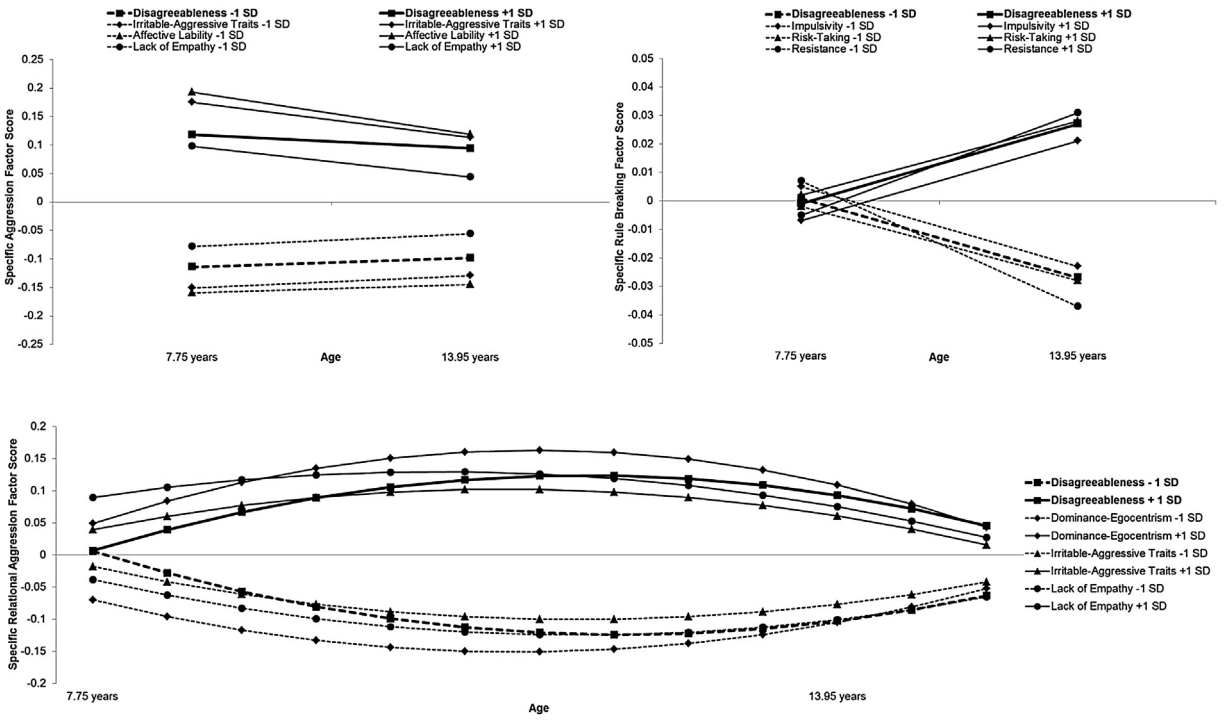


**Fig. 2.** Interactions between age and Disagreeableness domain and exemplary facets in predicting the specific externalizing subfactors.

findings for RB are also consistent with evidence in adults linking unique variance in RB to low levels of control (Burt & Donnellan, 2008), and are furthermore in line with normative developmental theories of increased risk-taking in adolescence (Steinberg, 2008). Finally, the findings for RAgg are particularly interesting, given previous suggestions regarding potential links between RAgg and borderline personality disorder (Crick et al., 2005, 2007). Although the correlations were modest, these results contribute to a small literature suggesting that narcissism may be highly relevant for RAgg (Underwood et al., 2011; Vaillancourt et al., 2007), even potentially differentiating RAgg from other types of youth externalizing.

One possible reason why specific RB and specific RAgg showed only sparse connections to personality pathology relates to the "normative hypothesis", or previous suggestions that RB and RAgg, in particular, may represent relatively normative types of ASB at certain developmental points (Burt, 2012; Tackett, Waldman, et al., 2009). This line of reasoning has been implicated in investigations of adolescent PD with suggestions that some personality-disordered symptoms are particularly normative during adolescence (Levy et al., 1999; Miller, Muehlenkamp, & Jacobson, 2008), which may imply that such normative behaviors should not be studied from a PD perspective. If the normative hypothesis does indicate a lack of relevant pathology during such "normative periods", we might expect diminished connections between personality pathology, RB, and RAgg during these periods. Thus, a series of follow-up analyses were conducted to explore the potential impact of age on the associations demonstrated here. Conducting initial analyses by split halves of the sample based on age (i.e., ages 6–11 compared to 12–18) suggested the need for a more refined approach, thus evidence for linear and quadratic age-based moderation of ASB subtypes was examined across the Disagreeableness domain and three "exemplary" personality pathology facets.

These analyses suggested age-based trends in ASB-personality pathology correlations that substantially diverged depending on the ASB subtype. Correlations with specific variance in Agg showed slight decreases in magnitude from childhood to adolescence (although that decrease was no longer significant at the higher-order Disagreeableness domain), whereas specific variance in RB showed the opposite pattern with a much more striking increase in correlational strength across adolescence. Specific variance in RAgg showed yet another pattern with quadratic effects that reflected the strongest correlations during middle childhood/early adolescence. These patterns are particularly striking, because they map on to developmental trajectories of each ASB subtype – Agg is highest in childhood, decreasing into adolescence; RB is highest in adolescence; and RAgg is highest in middle childhood/pre-adolescence (Burt, 2012; Stanger et al., 1997; Underwood et al., 2011; Vaillancourt et al., 2007). Thus, correlations between ASB and personality pathology show clear connections to normative trajectories of ASB—but the implications of these findings are in contrast to what the normative hypothesis might suggest. That is, these results suggest that those periods where behavior is *most* normative may be the most fruitful in examining underlying connections with personality pathology. Thus, more research attention—not less—should be devoted to the manifestation of youth PD during these high-prevalence periods.

The interpretation of these findings fit well with research on gene × environment interactions, which have often described increased heritability in environmental contexts that allow greatest variance in the target behavior (e.g., Johnson & Krueger,

2005; Turkheimer, Haley, Waldron, D'Onofrio, & Gottesman, 2003). That is, contexts with the loosest environmental constraints on behavior may be ideal for understanding etiologic components of the behavior—much like the potential effect that normative developmental periods have on elucidating core components of problem behavior, as illustrated in the current study. These findings also support the incorporation of personality pathology, particularly traits reflecting disagreeableness and negative emotionality, into a broader conceptualization of youth externalizing. Attention to personality pathology traits offers an important opportunity for better understanding the core components of psychopathology (Tackett, Lahey, et al., 2013) as well as elucidating the psychological nature of differential psychopathology subtypes (e.g., RB – risk-taking versus RAgg – narcissism). This additional information offered by personality/PD may prove useful in better understanding the impact of causal factors (both internal, e.g., genes, and external, e.g., delinquent peers) and the development of effective approaches to prevention and intervention.

This study represents an important first step in incorporating youth personality pathology into a broader externalizing spectrum, but possesses limitations that point to future directions in this area. To maintain consistency across measures and ages, only caregiver report (mostly mother) was used in the present study. Little work has investigated the implications of caregiver versus self-report for youth personality pathology, and the picture may be complicated, as it is with assessing PDs in adults (Oltmanns & Turkheimer, 2009). For example, parent-report of youth PD may reflect a more valid and meaningful source of variance, insofar as it potentially shows stronger connections to biological variables than does youth self-report (e.g., Tackett, Herzhoff, Harden, Page-Gould, & Josephs, 2013; Tackett, Lahey, et al., 2013). Thus, a prioritization of self-report in such studies may not be warranted and certainly demands more focused investigation in future efforts. In addition, the present study relied on cross-sectional data, rather than longitudinal follow-up of the same children. Ideally, a nuanced understanding of age-related changes in youth externalizing will harness the power of longitudinal designs and investigate how these behaviors develop over time. We studied a population-based sample that commonly shows lower rates of externalizing behavior, which might have impacted the size of the association with personality pathology. Therefore, extension to a clinical sample is a logical next step. Another important future direction is the examination of personality profiles that may differentially define the subtypes of externalizing problems examined here. For example, person-centered analyses (e.g., De Bolle & Tackett, 2013) represent an interesting complement to the variable-centered analyses presented here and an exciting avenue for future research.

In conclusion, these findings support the inclusion of personality pathology traits in the domain of youth externalizing problems. In particular, antagonistic traits appear to play a primary role in the externalizing domain, with emotional instability playing a relevant, but potentially secondary role in conceptualizing these problems. Agg showed robust connections with both disagreeableness and emotional instability, whereas RB and RAgg showed connections only with facets representing disagreeableness (albeit different facets were important for RB than for RAgg). Furthermore, these relationships are differentially expressed across age, such that the strongest relationships with personality pathology were found during those developmental periods when the specific ASB subtype is most prevalent. This work underscores the need to examine personality pathology from early in life, and instead of avoiding periods where problems are most normative, potentially highlighting them in empirical investigations.

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