Toward an Externalizing Spectrum in *DSM–V*: Incorporating Developmental Concerns

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ABSTRACT—***Progress and innovation in* DSM–V *include the proposal of a new structural organization of disorders that stands to bring childhood and adult disorders together. Specifically, many common disorders would be grouped under broader dimensions of internalizing and externalizing problems. Although this distinction originated in childhood psychopathology research, current work has drawn heavily from studies with adults. The integration of common childhood disorders into the current approach remains an important task. This article reviews evidence for a structural model of externalizing pathology with a focus on research with younger populations and highlights both commonalities and distinctions that exist between externalizing dimensions in children and the externalizing spectrum in adults. The article also summarizes 3 areas that pose key questions for delineating an externalizing spectrum that better reflects developmental concerns: the incorporation of childhood disorders, the integration of temperament and personality traits, and better accounting for relevant developmental issues, including person–environment interaction, critical developmental periods, and differentiating normal and abnormal behavior.***

KEYWORDS—*externalizing behaviors; developmental psychopathology; aggression; attention deficit/hyperactivity disorder; relational aggression;* DSM–V

This work was supported in part by funding from the Social Sciences and Humanities Research Council of Canada. I would like to thank Joan E. Grusec and Robert F. Krueger for their helpful comments on an earlier draft of this manuscript.

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Achenbach's seminal work on an empirically based approach to assessment of childhood psychopathology has changed the way researchers, clinicians, and educators think about childhood behavioral problems (Achenbach, 1966; Achenbach & Edelbrock, 1984). This far-reaching influence has been sustained over the past several decades and resulted in the Achenbach family of instruments, with the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), in particular, remaining one of the most common forms of assessment of childhood psychopathology. One of the fundamental aspects of Achenbach's original analyses was the introduction of a hierarchical conceptualization of mental disorders (Achenbach, 1966). Specifically, Achenbach identified two broad behavioral spectra, which he labeled internalizing and externalizing, that substantially accounted for the systematic covariation among more narrowly defined behavioral problems.

In addition to the enormous impact that Achenbach's work has had on the realm of childhood psychopathology, it has also had an impact on approaches to adult psychopathology, such that a similar hierarchical organization has more recently been identified in adult populations (Krueger, 1999). While Achenbach's hierarchical structure resulted from analyses at the item level of specific behaviors, the hierarchical structure identified in adult populations has primarily resulted from analyses on disorders as defined by the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*; American Psychiatric Association, 2000). Thus, analogous internalizing and externalizing dimensions have emerged across childhood and adult populations as well as across differential levels of analysis.

Over the past decade, this area of inquiry has flourished, with numerous researchers working toward identification of common causes and correlates to these broadband domains. Indeed, research in this area has progressed to an extent that this hierarchical organization, at the core still analogous to Achenbach's early conceptualization, has been proposed as an overarching hierarchical scheme for the next edition of the *DSM*, *DSM–V* (Andrews et al., 2008). This movement toward a dimensional

approach to the *DSM* (or at least toward a dimensionally based organization) has largely been based on recent research with adult populations (see Andrews et al., 2009; Krueger & South, 2009). The parallel with Achenbach's work, primarily in children and adolescents, underlines the important opportunity to build direct bridges between these different age groups. In a sense, the dimensional spectrum approach has come full circle. We must now realize the need to turn back to the literature that first brought us the internalizing–externalizing spectrum conceptualization in order to incorporate childhood disorders, personality, and temperament into the psychopathology spectra that researchers have been mapping out for adults.

In this article, I identify some of the key issues in such an integration, focusing on the externalizing domain, identifying commonalities between child and adult externalizing problems, and specifying some of the questions that must be answered for a developmentally sensitive externalizing spectrum to be realized. First, I will discuss current ideas regarding the clinical presentation of externalizing psychopathology and describe working proposals for an externalizing spectrum in *DSM–V*. Next, I turn to remaining questions about which childhood disorders and personality and temperamental traits might be included in such a spectrum and identify relevant gaps in knowledge. Finally, I discuss salient developmental issues that have been highlighted by *DSM–V* work groups within the context of externalizing disorders, focusing on developmental course and the importance of a developmental psychopathology framework.

CURRENT CONCEPTUALIZATIONS OF THE EXTERNALIZING SPECTRUM

Childhood Externalizing

The externalizing spectrum as measured by the CBCL is made up of two related dimensions, aggressive behaviors and rule-breaking (previously called delinquent) behaviors (Achenbach & Rescorla, 2001). These dimensions were derived using item-level factor analyses and replicate across ages and multiple cultures (e.g., Crijnen, Achenbach, & Verhulst, 1997; Ivanova et al., 2007). They show distinct etiologic factors, course, and associated outcomes but are highly co-occurring with one another. The CBCL also includes an attention-problems scale, although Achenbach does not include it under the broader externalizing domain due to low interscale correlations with the aggressive behaviors and rule-breaking behaviors scales.

Research on "externalizing" behaviors that has relied primarily on *DSM*-defined constructs often includes oppositional defiant disorder (ODD), conduct disorder (CD), and attention deficit hyperactivity disorder (ADHD; e.g., Burt, McGue, Krueger, & Iacono, 2005). As defined in *DSM–IV*, ADHD is further broken down into subsets characterized predominantly by symptoms of inattention (e.g., pervasive forgetfulness, difficulties with sustained attention), hyperactive–impulsive symptoms (e.g., excessive energy, disruptive impulsivity), or high levels of symptoms from both groups (i.e., the combined subtype). While oppositional and defiant behaviors are primarily subsumed under the aggressive behaviors scale of the CBCL, CD symptoms have been shown to reflect a two-factor structure that parallels the two externalizing scales of the CBCL and shows specificity in relation to these analogous scales (Tackett, Krueger, Sawyer, & Graetz, 2003). One recent investigation by Lahey et al. (2008) directly tested a CBCL-based versus a *DSM*-based externalizing model from *DSM–IV* symptoms. Specifically, a *DSM* model was fit by defining CD, ODD, inattentive ADHD, and hyperactive–impulsive ADHD as four separate factors. Compared with a strict CBCL interpretation in which aggressive CD+ODD, nonaggressive CD, and all ADHD symptoms were defined as three factors, the *DSM* model showed better fit to the data. However, a revised four-factor CBCL model that differentiated the ADHD subtypes along with aggressive CD+ODD and nonaggressive CD showed a fit that was comparable to, although still slightly poorer than, the *DSM*-based four-factor model.

Thus, there appear to be some unresolved differences in the type of content that should be included in childhood externalizing behaviors when approaching constructs from the CBCL versus the *DSM* measurement perspective. Because the CBCL and the related literature have played such a central role in conceptualizations of childhood externalizing behavior, it will be necessary to resolve such discrepancies between the CBCL and *DSM* approaches in working toward a comprehensive integration. In particular, it is not clear whether *DSM*-defined ADHD is best conceptualized as part of an externalizing spectrum or, alternatively, whether the hyperactive–impulsive subtype of ADHD in particular should be grouped with these other externalizing disorders (e.g., Lahey et al., 2004) and the inattentive subtype considered as separate from them.

An Externalizing Spectrum in *DSM–V*

The externalizing–internalizing spectra have been proposed as an organizational schema to be used in *DSM–V* (Andrews et al., 2008). There are a number of advantages that have been raised regarding such a change, including the use of a more parsimonious and meaningful organizational system, a means to simplify problems caused by excessive comorbidity, an aid to treatment development, and a mechanism to promote future research (Krueger & South, 2009). Disorders would be considered part of the externalizing spectrum according to shared symptoms, etiology, course, and treatment. The externalizing spectrum that has been initially proposed includes historically "adult" disorders—substance use disorders, disinhibited personality disorders, and impulse control disorders—as well as historically "child" disorders—CD and ADHD. The primary rationale for this particular grouping that has been put forth is the shared temperamental antecedent of disinhibition. Recent investigations that included certain subsets of the behaviors defined by these disorders have provided evidence that the externalizing spectrum is highly heritable in both adulthood (Krueger et al., 2002) and

in childhood (Baker, Jacobson, Raine, Lozano, & Bezdjian, 2007). In addition to evidence for shared genetic factors, previous investigations have found evidence for common psychophysiological correlates, such as reduced P300 amplitude (an event-related potential reflecting responsivity to target-relevant stimuli), that link these behaviors to one another (e.g., Iacono, Malone, & McGue, 2003). This research has not directly addressed the questions raised here, namely how to account for various childhood externalizing behaviors in such a spectrum.

TOWARD A DEVELOPMENTALLY INTEGRATED EXTERNALIZING SPECTRUM

Childhood Disorders

As noted previously, questions remain regarding which childhood disorders belong on a comprehensive externalizing spectrum. While the working documents proposing a reorganization of *DSM–V* include placement of ADHD on the spectrum, this is at odds with Achenbach's conceptualization of attention problems as residing outside the externalizing–internalizing schema. One hypothesis for explaining the relation between ADHD and the broader externalizing domain suggests that the hyperactive–impulsive subtype shares common temperamental correlates and regulatory behavioral deficits with the externalizing spectrum, whereas the inattentive subtype demonstrates deficits in regulating attention that are more distinct from other externalizing problems (Nigg, 2006). This raises an additional question, namely, how best to conceptualize the inattentive subtype of ADHD in such a model. One option would be to conceptualize ADHD as distinct from both internalizing and externalizing disorders. Such a move would be inconsistent with the high rates of comorbidity among ADHD, CD, and ODD, however (Burt et al., 2005). In addition, a disadvantage of designating ADHD as distinct from other externalizing disorders is that doing so could hinder progress made by studies investigating etiological factors relating not only to ADHD in particular but also to externalizing problems generally. Specifically, a potential advantage of grouping common disorders according to a valid structural taxonomy is to facilitate the search for specific causes of these behavioral problems (e.g., Dick et al., 2008). Additional diagnostic questions include whether and how to account for potential subtypes of antisocial behaviors that include developmental distinctions (i.e., age of onset; Moffitt, 1993), as well as behavioral distinctions (i.e., aggressive vs. nonaggressive behaviors; e.g., Tackett et al., 2003). I will return to the implications of developmental subtypes later in this article.

Temperament and Personality

One major component of the externalizing–internalizing spectra that have been established in adult populations is the inclusion of individual-difference characteristics, namely, personality traits. The role of temperament and personality is highlighted here, given the use of common temperamental antecedents as an organizing factor in the spectrum conceptualization for *DSM–V*. Thus, it is important to understand (a) whether personality traits identified in relation to adult externalizing are also related to childhood externalizing and (b) whether additional constructs may be needed to explicate fully the dispositional correlates of childhood externalizing.

A related issue concerns whether temperament and personality traits are best viewed as antecedents of, or risk factors for, later disorder or as a correlated component of a dimension consisting of both dispositional and disorder constructs (Rothbart, 2004; Tackett, 2006). Research conducted strictly from a vulnerability perspective (i.e., temperament as an early risk factor) unfortunately cannot disentangle evidence for these two explanations unless additional variables reflecting potential common causes are also measured (Tackett, 2006), and it is likely that multiple possible relations between temperament and disorder exist (Rothbart, 2004). From a more psychometric perspective, some researchers have sought to eliminate item overlap between measures of temperament and measures of psychopathology to determine whether significant relations are primarily the result of confounded measurement techniques. These studies have typically found evidence for strong relations, even when item overlap is eliminated (Lemery, Essex, & Smider, 2002; Lengua, West, & Sandler, 1998).

Researchers interested in early dispositional characteristics have recently discussed differences and similarities among models of temperament traits and childhood personality (Caspi, Roberts, & Shiner, 2005; Shiner & Caspi, 2003), and interested readers are referred to these more exhaustive reviews. Despite recent attempts to integrate these literatures, including attempts to integrate them alongside their connections to psychopathology (Nigg, 2006; Tackett, 2006), a significant divide remains and presents a barrier to ultimate integration of these concepts. In particular, empirical investigations linking temperament and personality approaches are limited (Rothbart & Bates, 2006). Theoretical hypotheses of such relationships typically conceptualize personality as developing out of early temperamental traits, which are presumed to be more biologically based and linked to regulatory, affective, and attentional systems (Nigg, 2006; Rothbart & Bates, 2006). Temperament has been proposed as a shared underlying feature of the development of both personality and psychopathology (Clark, 2005). Major temperament models are typically composed of dimensions of affect and dimensions of regulation. Specifically, dimensions of affect include both positive affect (which has been related to systems of behavioral activation or approach) and negative affect (which has been related to systems of behavioral inhibition or avoidance; Nigg, 2006; Rothbart & Bates, 2006). In terms of higher order traits, temperament and personality models generally converge on findings that neuroticism–negative emotionality and effortful control–disconstraint (reflecting both agreeableness and conscientiousness in five-factor models) are substantially related to externalizing behaviors in childhood (see Nigg, 2006, and Tackett, 2006, for

recent reviews). More refined connections differentiating specific behavioral patterns will probably involve lower order traits and facets (e.g., Eisenberg et al., 2004), which poses additional questions as well as problems, since divergence between temperament and personality models is more prevalent at lower levels of the hierarchy.

In addition to these comprehensive models of normative individual differences in children, it is important to consider more maladaptive characteristics that may not be well represented in broader taxonomies of personality and temperament traits. Callous-unemotional personality traits in childhood have been shown to index more severe and more heritable forms of antisocial behavior (see Moffitt et al., 2008, for a recent review). Such characteristics have been linked to temperamental characteristics such as negative reactivity and effortful control (Frick & Sheffield Morris, 2004), as well as to the personality traits including (low) agreeableness and (low) conscientiousness (Essau, Sasagawa, & Frick, 2006). Other researchers have focused on a broader approach to capturing maladaptive personality traits in younger age groups, such as the recently developed Dimensional Personality Symptom Item Pool (DIPSI), which measures a four-factor structure of maladaptive traits (De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006). Further, the factor structure of the DIPSI was represented by a two-dimensional internalizing–externalizing structure at a higher level of the hierarchy, with disagreeable and unconscientious disinhibition showing primary loadings on the externalizing factor.

Incorporating Developmental Issues

DSM–V work groups have highlighted key issues that must be addressed in working toward a life-span developmental approach in *DSM–V*: natural history of disorder, differentiation of normal versus abnormal developmental change, age of onset, and clinical presentation (Tackett, Balsis, Oltmanns, & Krueger, 2009). Research has provided evidence for cumulative negative effects on childhood and adolescent behavioral problems from a variety of environmental risk factors such as domestic violence, maltreatment, and parental stress (Appleyard, Egeland, van Dulmen, & Sroufe, 2005). Numerous specific risk factors for externalizing behavior have also been investigated, including negative parenting characteristics and deviant peer groups (Jenkins, 2008).

Increasing evidence of early risk factors for externalizing behaviors, particularly as such factors interact with environmental influences to increase risk, is important in elucidating the natural history for externalizing problems. For example, Caspi et al. (2002) found evidence for a gene–environment interaction for antisocial behavior that demonstrated the differential impact of child maltreatment on males with a functional polymorphism conferring low levels of monoamine oxidase A (MAOA) expression. Specifically, these researchers demonstrated that maltreated children with a genotype linked to low levels of MAOA expression were at significantly increased risk to develop externalizing problems when compared to maltreated children with a genotype linked to high levels of MAOA expression. Negative parenting characteristics have been shown to moderate the relation between temperament–personality and externalizing problems (De Clercq, Van Leeuwen, De Fruyt, Van Hiel, & Mervielde, 2008; Miner & Clarke-Stewart, 2008). Problematic parenting may also indirectly influence externalizing behaviors through its effect on temperament development (Lengua, 2006). Deviant peer influences, which have also been targeted as a potential cause of externalizing behaviors, were found to increase risk of antisocial behavior in boys with high testosterone levels (Rowe, Maughan, Worthman, Costello, & Angold, 2004). Moreover, boys with high testosterone levels who did not experience deviant peer influences were more likely to exhibit prosocial leadership qualities.

Child personality traits can act as both risk and resiliency factors, depending on the trait, the combination of traits within the child, and the environment the child is exposed to. Certain traits may solicit protective environmental influences that buffer negative effects of risk factors, and certain other traits may place some children at greater risk or susceptibility to the effects of negative environmental influences (Jenkins, 2008). This opportunity for personality to emerge as both risk and resiliency emphasizes the potential importance of identifying environmental factors (perhaps on Axis IV) that may help explicate the nature of observed pathology, as well as those that may serve as useful targets in treatment. Future work in this area should identify potentially critical developmental periods when vulnerability is highest by investigating whether these relations change across the life span (Tackett, Balsis, et al., 2009). Additional research is also needed to better understand the extent to which a given environmental influence exerts a nonspecific effect for later problems versus specific effects on externalizing behaviors.

In addition to research that underscores the importance of person–environment interactions in the development of antisocial behaviors, other work has emphasized the importance of recognizing normative age-related changes in behavior for understanding and identifying externalizing pathology (Richters & Cicchetti, 1993). Specifically, it is important to understand when behavioral differences represent developmentally normative behavior rather than psychopathology (see Tackett, Waldman, & Lahey, 2009) or reflect a developmentally delayed trajectory rather than an underlying disorder. Moffitt's (1993) developmental taxonomy for antisocial behavior is the most salient example of the importance this issue has for externalizing behaviors. Specifically, Moffitt proposed two developmental subtypes of antisocial behavior—childhood-onset and adolescent-limited—to help explain the substantial increase in the prevalence of antisocial behaviors in adolescence. According to her theory, which is supported by much intermittent research, a certain amount of antisocial behavior is normative and perhaps even adaptive in adolescence, particularly for boys (e.g., Moffitt, 2003). A rough but fairly accurate proxy for this distinction is the age of onset of antisocial behavior, which is codified in *DSM–IV* as optional

subtypes for a diagnosis of CD. These subtypes are being revisited for *DSM–V*, but in general have provided important differential information about etiology, course, and outcome (Moffitt et al., 2008).

As in much of Moffitt's work, the developmental course of externalizing psychopathology that has received the most research attention is the progression from CD to antisocial personality disorder (ASPD). Violent CD symptoms place youth at higher risk for development of later ASPD (Gelhorn, Sakai, Price, & Crowley, 2007). Researchers investigating the longitudinal course of personality disorders have even suggested that stable CD in childhood be classified as a personality disorder (Cohen, Crawford, Johnson, & Kasen, 2005). Some work has suggested potential gender-related multifinality—that is, different developmental outcomes given the same early risk factor—for childhood conduct problems, such that girls with CD may develop borderline personality disorder as adults, whereas boys with CD are more likely to develop ASPD (Guzder, Paris, Zelkowitz, & Marchessault, 1996). A remaining issue in this research is that of construct overlap between CD and ASPD (Tackett, Balsis, et al., 2009). One study found comorbidity rates for CD and ASPD as high as 75% in a sample of incarcerated adolescents (Eppright, Kashani, Robison, & Reid, 1993). Such findings have been limited by the tendency not to diagnose ASPD before age 15, given the APA differentiation between childhood (CD) and adult antisocial behavior, which are combined for the ASPD diagnosis.

Beyond links between childhood CD and ASPD in adulthood, longitudinal studies can further refine understanding of externalizing across the life span by identifying disorders that may represent early precursors to adult externalizing. For example, Hofstra, van der Ende, and Verhulst (2002) found that early externalizing behaviors significantly increased risk for disruptive disorder diagnoses in adulthood. Their study also found that the risk was over five times greater for females than for males. A similar finding revealed that aggressive behavior in adolescence substantially increased risk for a diagnosis of a substance use disorder in adulthood for females but not for males (Hofstra, van der Ende, & Verhulst, 2001). Such work supports continuity for externalizing problems over time, although it also suggests that early problems may confer general rather than specific risk and that there may be potential multifinality between genders as well as other potential subgroups.

REMAINING QUESTIONS FROM A DEVELOPMENTAL CONTEXT FOR AN EXTERNALIZING SPECTRUM

In this article, I have highlighted three primary areas where important questions remain to be answered in considering the conceptualization of an externalizing spectrum for *DSM–V*. The potential advantages of a spectrum approach, such as rectifying problems with comorbidity and facilitating the search for common etiologic factors, are impetus for developmental psychopathologists to consider an empirically based integration of childhood externalizing problems into the working framework. Current limitations toward this goal include questions regarding which childhood disorders to incorporate and how best to do so, the relation among temperament and childhood personality traits as aspects of an externalizing spectrum in younger age groups, and the need to consider the development of antisocial behavior in terms of person–environment interactions and in terms of the context of normal development.

Further, being intertwined with one another, these issues must be conceptualized and investigated conjointly. For example, understanding how to conceptualize CD in an externalizing framework must rely on the growing body of research differentiating developmental and behavioral subtypes (Moffitt et al., 2008). The role of ADHD subtypes in a broader externalizing perspective is further elucidated by recent work that has investigated differential temperament correlates of these subtypes (Martel & Nigg, 2006) and by molecular genetic evidence distinguishing levels of comorbid aggressive behaviors in individuals with ADHD (Caspi et al., 2008). Thoughtful integration of childhood externalizing disorders into a broader externalizing spectrum will require multidisorder studies, preferably ones using multiple measures including diagnostic interviews and checklists such as the CBCL. In addition, such investigations will be most productive if research questions are framed hierarchically (i.e., measuring constructs at both broadly and narrowly defined levels) in order to better understand both common and specific causes and correlates.

While theoretical connections among major temperament and personality models are now fairly well established, there is a need for studies documenting empirical connections among widely used measures in both domains. It is imperative that an empirically based common language be established in order for each domain to reap the benefits of the vast literature base established in the other. Ideally, this common language would account for both normative and maladaptive personality characteristics. In addition, fundamental to many theories of early temperamental traits is the idea that personality and psychopathology develop out of these early characteristics (Clark, 2005; Shiner & Caspi, 2003). Temperament may be conceptualized as providing a "reaction range" within which later behavior develops following interaction with the environment (Nigg, 2006). Longitudinal studies as well as cross-sectional studies targeting specific age groups will be necessary to test such hypotheses. In general, as our understanding of the complexity of development of externalizing pathology grows, we must turn to appropriate methodologies to unpack this complexity (Jenkins, 2008). Such research can simultaneously build bridges between personality and temperament constructs (i.e., when measures of both are included) while testing transactional models of the development of externalizing behaviors and targeting specific environmental factors. A final and equally important bridge provides the link between researchers studying "normal" development and those studying

"abnormal" development. Maintaining connections between such literatures is essential to fully understanding pathological development.

In summary, there are several gaps not yet filled that prevent a comprehensive understanding of the relationship between externalizing behaviors in childhood and adulthood. Research has begun in each of these domains, and the early results hold much promise for an integrated understanding of the development of externalizing pathology across the life span. Diagnostic classification of childhood psychopathology has evolved from merely a disorder specifier in early editions of the *DSM* (e.g., schizophrenia, childhood type) to a driving force that stands to influence a substantial reorganization of the entire diagnostic system via Achenbach's early work differentiating internalizing and externalizing spectra in childhood problem behaviors (Achenbach, 1966). Continuing multilevel research that attempts to build bridges across areas still distinct from one another is crucial to producing an externalizing spectrum in *DSM–V* that reflects the unique aspects of externalizing pathology in childhood and adolescence, as well as its commonalities with adult disorders.

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