DSM-V and the Future Diagnosis of Attention-Deficit/Hyperactivity Disorder

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In general, recommendations for the *DSM-V* and future diagnoses of psychiatric disorders include a dimensional approach to complement the standard categorical approach. For the assessment of attention-deficit/hyperactivity disorder (ADHD), dimensional approaches to supplement the rigid categorical approach of the *DSM-IV* abound. Historically, dimensions based on severity of symptoms of ADHD and severity of general psychopathology have been used. General dimensional approaches described by a workgroup organized by the American Psychiatric Association are reviewed to provide background and context for a discussion of old and new dimensional approaches to complement future categorical diagnosis of ADHD in the *DSM-V*.

Introduction

In an early publication by the American Psychiatric Association (APA) entitled *A Research Agenda for DSM-V*, Kupfer et al. [1] stated the goal to "transcend the limitations of the current *DSM* paradigm and encourage a research agenda that goes beyond our current ways of thinking (about diagnosis)." In a subsequent publication in the same series entitled *Refining the Research Agenda for DSM-V*, Helzer et al. [2•] described workgroup reports with proposals to go beyond the current categorical definitions of disorders by incorporating "more quantitative, dimensional concepts into *DSM-V*." The state-of-the-art dimensional approaches described for non–attention-deficit/hyperactivity disorder (ADHD) disorders [2•] may provide a model for addressing some of the enduring and emerging critical issues [3••] about the future diagnosis of ADHD in the *DSM-V*.

In the APA workgroup reports, Regier [4] provided a brief historical review of the emergence of the categorical approach (eg, the Robins-Guze emphasis on reliability of diagnosis and the Feighner criteria for evaluating validity of categorical diagnoses). Helzer et al. [5] provided a summary of the various approaches for dimensional complements to categorical diagnoses in the *DSM-V*, and Kraemer [6•] described a general approach for changing the fundamentally binary categorical diagnoses in the *DSM-IV* (ie, positive when a patient is thought to have a disorder and negative otherwise) into an ordinal diagnosis. This is accomplished by specifying three or more ordered values based on clinically relevant information such as symptom counts, duration, or severity; certainty of diagnosis; and degree of impairment. In other workgroup reports, examples were offered for disorders of adulthood, including substance dependence [7], depression [8•], psychosis [9], anxiety [10], personality [11], and developmental psychopathology disorders [12•].

In a summary of the workgroup reports and a recommendation for "the way forward," Helzer et al. [5] outlined two general approaches for dimensional adjuncts to the *DSM-V*: 1) the "top-down" approach that historically has been taken to define *DSM* criteria, with the symptom severity method of continuous assessment of core symptoms of a single diagnosis [7,8•] or multiple diagnoses [10] to define ordinal scales [6•] and 2) the "bottom-up" approach based on statistical analyses to determine which symptoms cluster into syndromes [11,12•], with ordinal scales [6•] based on the factor analytic method.

In the literature on ADHD, both the bottom-up approach and ratings of psychopathology [13–15] and the top-down approach and ratings of *DSM* symptoms of ADHD [16–19] have been used as dimensional adjuncts to complement categorical diagnosis. The bottom-up approach, based on factor analysis of psychopathology, has its origins in the 1960s and 1970s, when the Conners Rating Scale was used to assess children who met the categorical diagnosis specified in the *DSM-II* that was labeled "hyperkinetic reaction to childhood" [20]. The Conners Ratings Scales [13] have been revised over the years, and the current parent (Conners Parent Rating

Scale-Revised [CPRS-R]) and teacher (Conners Teacher Rating Scale-Revised [CTRS-R]) versions provide dimensional adjuncts to the *DSM-IV* diagnoses for childhood disorders, including ADHD. The Child Behavior Checklist (CBCL) family of questionnaires for parents (mother and father), teachers, and child (self) are based on items related to general psychopathology rather than *DSM* symptoms [14]; together, these assess a child's behavior in a variety of settings and from multiple perspectives [12•].

The Strengths and Difficulties Questionnaire (SDQ) [15], which evolved from the Rutter Rating Scales, has four subscales—each with five items—that contribute to a total score. The subscales vary in the proportion of items worded to describe weaknesses (scored positively to reflect presence and severity of psychopathology) and strengths (scored negatively to reflect absence and severity of psychopathology). For the hyperactivity and inattention subscales, there are three weakness and two strength items, but the subscale score ranges from 0 to 15 because of the reverse scoring of strengths. All of these bottom-up rating scales have norms for gender and age that provide statistical cutoffs to define extreme placement on the dimension. Logically, this will identify equal proportions of cases for the subgroups defined by these factors and statistical methods.

An example of how this dimensional adjunct might be used to improve categorical diagnosis is provided in the APA workgroup report by Hudziak et al. [12•]. They present a detailed example for the diagnosis of conduct disorder, which by *DSM-IV* criteria requires that at least 3 of 15 symptoms be present (in addition to impairment). Because distinctions for age and gender or for differences across source or setting are not specified by the *DSM-IV* criteria for conduct disorder, Hudziak et al. [12•] suggested that the CBCL could be used as a dimensional adjunct to provide information on these missing sources of variance by characterizing related dimensions of psychopathology (eg, for aggressive and rule-breaking behavior) for use in evaluating "children on dimensions in relation to national norms that include informant, age, and gender variance."

The top-down approach for the assessment of ADHD has historical origins in the 1980s, when the *DSM-III* criteria were established for the categorical diagnoses of attention-deficit disorder (ADD) without and with (ADDH) hyperactivity. Swanson, Nolan, and Pelham developed a rating scale (SNAP) with items taken from the exact wording of the symptoms specified in the three domains (five for inattention, six for impulsivity, and five for hyperactivity) that defined ADD and ADDH. Each item was rated on a four-point scale of symptom presence (not at all = 0, just a little = 1, quite a bit = 2, very much = 3). The SNAP was revised with each *DSM* revision to provide a symptom severity dimension for the *DSM-III-R* and the *DSM-IV* (based on the nine symptoms in the inattention domain and the nine symptoms in the hyperactivity-impulsivity domain) [16]. Recently, parent and teacher norms for the SNAP-IV were developed for

school-age children in the United States by Bussing et al. [21] and in Taiwan by Gau et al. [22]. The SNAP-IV is publicly available at http://www.adhd.net. Other ADHD rating scales were developed to provide similar severity dimensions based on severity or frequency of items defined by the 18 ADHD symptoms specified in the *DSM-IV*, including in the DuPaul ADHD rating scale [17], the Disruptive Behavior Disorder rating scale [18], and the Vanderbilt ADHD rating scale [19]. These ADHD rating scales have long been used to define a dimension of symptom severity for use as an adjunct to the categorical diagnosis of ADHD proposed by Kraemer [6•].

An example of the use of a symptom severity dimension to complement the categorical diagnosis of ADHD is provided by the Multimodal Treatment study of ADHD (MTA). In the MTA assessment battery, a semistructured parent interview (the Diagnostic Interview Schedule for Children [DISC]) was used to make a categorical diagnosis of ADHD, but the SNAP rating scale was used as a dimensional supplement [23]. If children did not meet *DSM-IV* symptom count criteria on the DISC, the clinician could count up to two symptoms documented by high teacher ratings on the SNAP ("quite a bit" or "very much") to meet the six-of-nine criterion for categorical presence of each symptom domain [24]. This is an example of the "or rule" that allows some symptoms to be counted if they are reported by either of the two main sources (parents or teachers). It is less stringent than the "and rule," which requires a symptom to be endorsed by both sources to be counted toward the categorical presence of a symptom domain. The "or rule" is used often in clinical practice because parents and teachers frequently do not agree at the symptom level [25], and in research studies of ADHD diagnosis [26,27•].

Current Issues in the Diagnosis of ADHD

There are many questions about the future of ADHD diagnosis in the *DSM-V*. A summary was recently provided by Rohde [3••], who lists and discusses eight questions about categorical diagnosis: *DSM–ICD* differences, dimensional adjunct, developmental sensitivity, gender-specific thresholds, biological markers, validity of different criteria, subtypes, and age-at-onset criteria. Based on the background provided by the APA workgroup reports [2•] and the recent literature that generated these questions [3••], we selected six areas to review, with a focus on dimensional adjuncts to categorical diagnosis.

Dimensional adjuncts to categorical diagnosis

As described previously, several dimensional perspectives of ADHD exist, with some relying on the *DSM–ICD* symptom list to define dimensions (eg, the SNAP, the DuPaul, the Disruptive Behavior Disorder, and the Vanderbilt rating scales) and others relying on nonsymptom items of psychopathology to define dimensions (eg, the CPRS/CTRS, CBCL, and SDQ). The content of the symp-

tom-based dimension should make it more sensitive and specific for *DSM* diagnosis; several recent studies have verified this. For example, Solanto and Alvir [28] evaluated the ratings of *DSM-IV* symptoms acquired by the SNAP and by the CPRS-R, in which the *DSM-IV* symptoms are included as paraphrased items but are embedded in a long list of many other items of childhood psychopathology. This context may change how parents respond to the *DSM-IV* symptoms in the CPRS-R compared with the exact items in the SNAP, a shorter ratings scale with just the 18 *DSM-IV* symptoms of ADHD. Also, Derks et al. [29••] used the CBCL and a parent interview (the DISC) to evaluate the relationship of the attention problems (APs) scale of the CBCL to the categorical diagnosis of ADHD in a German national sample. They showed that a low AP rating was almost always associated with nondiagnosis of ADHD, but a high AP rating was only associated with an ADHD diagnosis in a minority of cases, indicating the danger of relying solely on ratings of psychopathology because of a bias toward false positives. In addition, Dopfner et al. [30••] evaluated the use of the nonsymptom SDQ rating scale and reported "a lack of sensitivity and specificity for the SDQ inattention/hyperactivity subscale for the detection of ADHD defined by *DSM-IV* symptom criteria." In addition, these studies suggest that to improve the sensitivity and specificity of the categorical diagnosis of ADHD in the *DSM-V*, a dimensional adjunct based on the specific symptoms would be superior to a dimensional adjunct based on general psychopathology.

Psychometric properties of dimensional scales

As discussed in detail by Andrews et al. [8•] in the workgroup report on depression, in scales applied in psychiatric diagnosis in clinic-based or referred samples, the traditional ratings suffer from extreme skewness when applied to population-based or epidemiologic samples and likely show an exponential rather than a normal distribution. Logically, this violates statistical assumptions about normality that justify the use of theoretical z-scores or T-scores or percentiles derived from population norms. For example, this is recognized in the recent manual for the Conners Rating Scales that recommends the use of empirical percentiles because some scales are highly skewed and there is a large difference between theoretical and empirical percentiles [13]. This may represent a fundamental (but correctable) psychometric flaw in most scales proposed as dimensional adjuncts to categorical diagnoses. Swanson et al. [31] developed the Strengths and Weaknesses of ADHD and Normal Behavior (SWAN) rating scale to correct this potential flaw by redefining the *DSM* symptom domains of ADHD as a dimension that covers the full range of behavior, not just the one side of the distribution that represents severity of psychopathology [8•]. The SWAN was based on the rationale and hypothesis that the highly skewed and nonnormal distribution may be a result of the definition of items that distort an underlying dimension that is distrib-

uted normally in the population. Polderman et al. [32••] used the SWAN and CBCL to address this hypothesis for ADHD ratings in assessing 1019 twin pairs in the Netherlands twin registry. The AP scale of the CBCL showed an exponential distribution in the population (as expected by the definition of psychopathology), whereas the SWAN ratings showed a near-normal distribution for the attention subscale and the hyperactivity subscale (as expected by the definition of the response options to include the full range of behavior at the item level). Polderman et al. [32••] showed how this property of the SWAN captures variance hidden in the "0" ratings of the CBCL. As suggested by the logic underlying the SWAN [31], this would hold for comparisons of SWAN ratings with the ratings of general psychopathology on the subscales of the SDQ or CPRS-R/CTRS-R, or to the symptom ratings from the SNAP, Vanderbilt, or DuPaul ADHD rating scales. Polderman et al. [32••] also speculated that if "parents prefer to emphasize differences rather than similarities, parental rater bias" might be reduced by the SWAN compared with the CBCL or other rating scales with narrow ranges of possible scores. This may be crucial for twin studies, as contrast effects might be amplified by the usual checklists with items defined by presence of psychopathology.

Young et al. [33•] evaluated the seven-point SWAN scale and used sophisticated statistical analysis that suggested that only five-response classes are used by parents who complete the form. In addition, they evaluated the use of SWAN ratings in the specification of subtypes of ADHD based on the Rasch model (ie, with the objective of obtaining data that fit an ideal). This study produced interesting and potentially important findings about the use of the SWAN as a dimensional adjunct to categorical diagnosis of ADHD: 1) some of the 18 ADHD symptoms of the *DSM-IV* are weaker than others for the measurement of the inattention and hyperactive/impulsive domains and 2) the dimensionalization of these two domains was different when used to specify the two primary subtypes of ADHD in the *DSM-IV* (the primarily inattentive and combined subtypes). These studies suggest that the SWAN may be valuable in the specification of subtypes of ADHD [33•] and for the specification of genetic bases of the disorder by candidate gene studies [34] or twin studies [32••,35].

Informant discrepancies in reporting ADHD symptoms

One of the most vexing problems in diagnosing ADHD and other disorders of childhood is the lack of agreement among sources (which is discussed in the workgroup report by Hudziak et al. [12•]). The *DSM* criteria call for documentation of symptoms by at least two sources (eg, parents and teachers) or settings (eg, home and school). The diagnosis of children with ADHD for the Preschool ADHD Treatment Study (PATS) [36,37] confirmed the observations of diagnosis of children for the MTA [24,25]. In line with the general literature on this topic, the parent–teacher agreement on ADHD symptoms was limited, resulting in low correlations for dimensional ratings ($r \sim 0.3–0.4$). How-

ever, the reasons for disagreement and low parent–teacher correlation are not clear. For example, debriefing in the MTA [25] suggested that some teachers may inflate ratings to help secure services for children in need, whereas debriefing in the PATS [37] revealed that preschool teachers appeared to minimize school-based problems, owing to a cultural bias that suggested that at young ages, children might "grow out of the problems" (as many do) and should not be labeled as abnormal even if severe symptoms are present. Of course, differences may be attributed to the source (eg, parents may be more lenient than teachers in assigning ratings for the same underlying behavior, or vice versa), the setting (eg, children may manifest more extreme behavior in the home than in the school, or vice versa), or both source and setting. The source and setting factors may be so highly correlated that differences probably cannot be attributed as unambiguous to one or the other. Previous research demonstrated that about 34% of the variance in observer ratings of behavior can be attributed to the source, which can partially explain the lack of agreement between parent and teacher ratings of ADHD symptoms [38]. However, as demonstrated by Lakes and Hoyt [39], there may be more agreement between sources than suggested by the low (0.25–0.30) correlations, as less-than-perfect scale reliability and restriction of range can attenuate the observed correlation between parent and teacher ratings, and correlations that adjust for restriction of range or use the SWAN rating scale are much higher ($r > 0.5$). As shown by Polderman et al. [32••] and Young et al. [33•], this may be particularly true when the full range of behavior is assessed rather than a restricted range of psychopathology.

No guidance currently is provided in the *DSM-IV* criteria or manual on how to address disagreement between sources. In previous discussions, we described approaches that use the "and rule," requiring the *DSM* criteria to be met by both sources [30••,40], and the "or rule," allowing the criteria to be met by a combination of the two sources [26,27•]. One important question is how should clinicians address disagreement between sources? Based on the MTA and PATS experience, we have made recommendations as to how to accomplish this by interviewing sources just about items of disagreement on ratings of symptoms [31] or understanding the philosophy of classroom teachers [37]. Another question is what steps could be taken to minimize the impact of source variance on diagnosis? Based on psychometric analysis of rating scales, we [31,39] and others [32••,33•,34,35] have made recommendations about how to address the attenuation of agreement imposed by artificial restriction of range of ratings.

Differences in the *DSM-IV* and *ICD-10* categorical diagnoses

One area in which source or setting differences have a major impact is on differences in categorical diagnoses based on *DSM-IV* and *ICD-10* criteria [40]. This issue was examined many years ago by teams of experts on the *ICD-9* (led by Eric Taylor) and on the *DSM-III* (led by Judy Rapoport),

who evaluated cross-national differences in the evaluation of prototypes by clinicians from the United Kingdom and the United States [41]. The *DSM–ICD* comparison was addressed further by Santosh et al. [40], who rediagnosed the MTA sample using *ICD-10* criteria and reported that only 25% of the *DSM-IV* diagnoses of ADHD-combined type met the more stringent *ICD-10* criteria for hyperkinetic disorder, despite the use of the same 18 symptoms. The difference was a result of the *ICD-10* "decision rules," which eliminated cases with comorbid anxiety and depression (25.4%), lack of pervasiveness across symptom domains (12.3%), and lack of pervasiveness across settings or sources (34.5%) because of the application of an "and rule" and in some cases limited impairment (2.8%) when all other criteria were met. Dopfner et al. [30••] recently reported the results of a German study of diagnosis of a population sample of 2452 children between the ages of 7 and 17 years that used *DSM-IV* and *ICD-10* criteria. In this sample, only 25% of those who met the *DSM-IV* criteria met the *ICD-10* criteria for hyperkinetic disorder. The estimated prevalence of ADHD was much higher for *DSM-IV* categorical diagnosis (5%) than for *ICD-10* categorical diagnosis (1%) and was similar to values suggested a decade earlier by an international group [42]. An important component of the Dopfner et al. [30••] study was the application of four additional criteria (impairment, pervasiveness, onset, and duration) that led to a dramatic decrease in the estimated prevalence for *DSM-IV* (2.2%) and *ICD-10* categorical diagnoses (0.6%).

Subtypes of ADHD

The *DSM-IV* criteria define three subtypes based on the categorical symptom count (≥ 6) for the two symptom domains (combined when both cutoffs are met, and predominantly inattentive or predominantly hyperactive/impulsive when one, but not the other, is met). Recent studies of ADHD subtypes by Lahey et al. [26] and Solanto and Alvir [28] suggest lack of stability of subtypes over time and thus question their validity as categorical diagnoses. The characteristics of subtypes vary with age, with an increasing percentage of females and cases with the predominantly inattentive diagnoses with increasing age. One recommendation is to use age- and gender-specific thresholds [12•], but this may be problematic for the *DSM-V* for historical and practical reasons. For decades, ADHD has been a childhood disorder, and a defining feature of ADHD has been a large (eg, 3:1–5:1) male-to-female ratio in the recognition of children of preschool and early elementary school age. The referral and treatment of more boys than girls is unlikely to change just by redefinition of the categorical diagnosis. Also, if gender-specific norms were adopted, then the administrative prevalence (ie, recognized cases) surely would increase. The recognition rate is now so high in the United States that a further increase may be so controversial that it would be counterproductive for the continued acceptance of ADHD as a disorder.

Another recommendation is to eliminate subtypes and require the full syndrome for diagnosis as specified by the *ICD-10* criteria [30••,40–42]. If accepted, this would likely reduce the administrative prevalence of ADHD significantly. Still another approach is to redefine subtypes based on latent class analysis, which differs from factor analysis that defines underlying dimensions by instead identifying discrete and homogeneous subgroups. For example, Volk et al. [43] reviewed the latent class approach that identifies at least six distinct classes (severe and mild variants of combined, inattentive, and hyperactive/impulsive subtypes). Based on assessment of a population twin sample with parent interviews about *DSM-IV* symptoms, they proposed symptom count criteria based on presence and absence of symptoms from the 18 total symptoms in the two *DSM-IV* domains (eg, for severe inattentive, ≥ 6 total with < 3 hyperactive/impulsive; for severe combined, ≥ 11 total with ≥ 4 hyperactive/impulsive), which appeared to identify clinically relevant subtypes that they recommended for consideration in the *DSM-V*. Similarly, Acosta et al. [44] used latent class analysis of a large sample of families with at least one ADHD child assessed by the Vanderbilt ADHD rating scale and identified six to eight distinct clusters that incorporate severity and presence of the *DSM-IV* domains. Thus, the latent class analysis approach may identify more subtypes of ADHD rather than eliminate them.

New developments: use of temperament and personality traits in children

A promising area is emerging with the use of personality and temperament scales in the evaluation and diagnosis of psychiatric disorders. For example, in the workgroup report on personality disorders, Krueger et al. [11] provided a description of the dimensional approach for an area that has "taken a leading role in contemplating the utility of dimensional approaches to the diagnosis of mental disorders." The 10 *DSM* personality disorders have 79 symptoms listed in the *DSM-IV*. Instead of obtaining a severity rating for each symptom, Krueger et al. [11] proposed to reduce this large set of disorders and symptoms by developing and using a scale to measure underlying dimensions of personality psychopathology: the Dimensional Assessment of Personality Disorders (DAPD), which is based on 30 fundamental elements (items) and four underlying factors: emotional dysregulation, dissocial behavior, inhibitedness, and compulsivity. According to their proposal, an individual would be rated on each item using a four-point scale (highly uncharacteristic, somewhat characteristic less than half the time, somewhat characteristic more than half the time, and highly characteristic) to develop prototypes for personality disorders. This approach, starting with personality psychopathology rather than *DSM*-defined symptoms, represents a complete overhaul of diagnostic criteria for personality disorders in the *DSM-V*.

Tackett [45] provided a comprehensive review of models to relate temperaments (or personality traits) to psychopathology in children. Four models to relate personality to psychopathology were discussed (the complication, exacerbation, predisposition, and spectrum models). Bijttebier and Roeyers [46] provided a brief outline of the state of the art of research on temperament and psychopathology, with an emphasis on effortful control and reactive control as major dimensions of temperament related to adjustment in childhood. Perhaps the best developed approach is based on the work of Rothbart et al. [47] and the Child Behavior Questionnaire, which identified three factors (negative affect, surgency, and effort control). Putnam and Rothbart [48] used multiple short forms of the Child Behavior Questionnaire (http://www.childbehaviorquestionnaire.org) with different links for different ages.

Tillman et al. [49] used the Junior Temperament and Character Inventory developed by Constantino et al. [50] to evaluate and contrast children with ADHD, pediatric bipolar disorder, and controls. They showed that ADHD was related to the factors of novelty seeking and reward dependence. A recent review suggested that temperament traits can be the starting point for ADHD assessment. Nigg [27•] described the dimensions of reactive control and effortful control based on the fundamental concepts of approach and withdrawal. Extreme placement on multiple underlying dimensions could be used to specify the cutoffs for the *DSM-V* diagnosis of ADHD. Experimental studies revealed that effortful control was related to the symptom domain of inattention, whereas reactive control was related to the domain of hyperactivity/impulsivity.

Conclusions

The APA workshop on dimensional approaches applied to non-ADHD disorders [2•] provides valuable and relevant lessons about how to address some of the enduring and emerging critical issues outlined recently by Rohde [3••] about the transition from the *DSM-IV* to the *DSM-V* and the future of categorical diagnosis of ADHD. Based on our selective review, we offer six conclusions about the future diagnosis of ADHD in the *DSM-V*:

1. Based on the background provided by the APA workgroups [2•], we conclude that a dimensional adjunct to the categorical diagnosis of ADHD is very likely to be included as part of the diagnostic criteria in the *DSM-V*. Based on studies of the categorical diagnosis of ADHD in the *DSM-IV*, a top-down approach based on the specific symptoms of ADHD may offer advantages over the bottom-up approach based on general psychopathology if the categorical diagnosis remains the gold standard because this has shown greater sensitivity and specificity associated with categorical diagnosis [29••,30••].

2. The development of an appropriate ordinal scale for use as a dimensional supplement will require application of statistical methods [5,6•,7,8•]. The traditional use of rating scales that characterize a restricted range of behavior may distort a normal distribution and generate extreme skewness in dimensional scales when used to characterize population samples [7]. This can be corrected by defining items to describe a dimension covering the full range of behavior, which also may improve the ability to conduct genetic studies to better understand the basis for psychiatric disorders [32••,33•,34,35].

3. The information for dimensional adjuncts and categorical diagnoses is acquired from multiple sources, settings, and informants [12•], and the lack of agreement has been noted as a critical issue. In the formulation of criteria for the *DSM-V* and future diagnosis of ADHD, disagreement at the item level (which is required by the *DSM* symptom count criterion) may be smoothed by aggregating symptom ratings into a total or average to form an ordinal scale [6•]. This may improve agreement, especially when the full range of behavior is incorporated into the definition of the dimensional adjunct [32••,33•].

4. Large *DSM–ICD* differences exist in the recognition of ADHD in clinical and population samples. Dopfner et al. [30••] provided empiric information that could be used to reconcile this by giving clear directions for addressing source discrepancies, which are treated so differently (ie, with the application of the "or rule" vs the "and rule"), as well as disparity in other areas of assessment (eg, acceptance of comorbidity, requirement for impairment) that result in a much broader category for the *DSM* than the *ICD* approach. The source discrepancy appears to be a primary reason for differences in prevalence rates, and a consensus on which rule to apply would bring the *DSM* and *ICD* diagnostic systems into closer alignment.

5. The evaluation of subtypes, gender, and age at onset are intertwined [26,28,32••]. Unraveling this in a meaningful way in the *DSM-V* may require re-examination of the diagnostic criteria and tradition of using the manifestation of symptoms at one point in time as the basis for diagnosis. The time course of the manifestation of the two domains of inattention and hyperactivity/impulsivity is so different that both should be considered together, perhaps by weighting of history of severity of symptoms [43,44] as well as prediction of future severity of symptoms.

6. One of the radical recommendations of the APA workgroups was to adopt the bottom-up approach, starting with personality psychopathology rather than *DSM*-defined symptoms [11]. This represents a complete overhaul of diagnostic criteria for personality disorders in the *DSM-V*, and a similar recommendation may be considered for the future diagnosis of ADHD in the *DSM-V* [27•,46].

Disclosure

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Papers of particular interest, published recently, have been highlighted as:
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•• Of major importance

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3.•• Rohde LA: **Is there a need to reformulate attention deficit hyperactivity disorder criteria in future nosologic classification?** *Child Adolesc Psychiatr Clin N Am* 2008, **17:**405–420.
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