

Comments on Proposed DSM5 Criteria for Learning Disabilities

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Overview

We compliment the work group on its efforts to align the DSM5 classification of learning disabilities with research. Moving the DSM5 away from the IQ-achievement discrepancy model and permitting better alignment with IDEA 2004, which was explicitly aligned with research, is a major strength. The use of the term dyslexia is also a major benefit of the proposed changes because it can be operationally defined on the basis of substantial converging evidence; individuals identified with dyslexia can benefit from specific treatments (Fletcher, 2009).

We are researchers with backgrounds in neuropsychology and cognitive neuroscience, education, and intervention research who have been involved in research and practice on learning disabilities for an average of 30 years. We apologize in advance for identifying multiple issues with the proposal, and don't intend to be negative or argumentative about what is clearly a thoughtful and research-aligned product. Our suggestions are provided with the intention of supporting the committee's fine work and providing criteria that are predominantly aligned with research and also to provide practitioners with methods of communicating more effectively with individuals with learning disabilities, and parents and teachers. To achieve what we know is a shared goal, we offer the following recommendations.

Overall Recommendation

The overall issue is what we perceive as a classification of learning disabilities that is unnecessarily restrictive. A classification should identify a set of classes (disorders) that can be operationally defined with distinct cognitive and neurobiological correlates and most importantly, treatments that extend directly from membership in a class. For learning disabilities, the number of disorders for which cognitive, and to a lesser extent, neurobiological correlates can be defined, is more extensive than is reflected in the proposed DSM5. This narrowness in the proposed DSM5 classification reflects a need to expand beyond difficulties in the acquisition of basic skills and consider research on meta-cognitive strategy development and self-regulation difficulties, especially as these difficulties manifest in reading comprehension, written expression, and mathematics problem solving difficulties. Our interpretation of the research provides evidence for six academic classes of learning disabilities, each of which has distinct cognitive correlates and for which there are specific evidence-based

interventions: word reading (dyslexia), reading fluency, reading comprehension, written expression, mathematics calculations (dyscalculia), and mathematics problem solving.

We reviewed the evidence for learning disabilities in these six domains in Fletcher et al. (2007). The converging evidence for math problem solving and written expression is weaker than for the other four disorders, but the key issue is that for each class, there are distinctive evidence-based interventions. Including the six categories within a classification of learning disabilities in the DSM5 reflects concurrence with the scientific literature in this area. We categorically agree with the decision to exclude disorders of oral expression and listening comprehension from the definition and diagnostic criteria for learning disabilities. We had advised the Department of Education during the reauthorization of IDEA 2004 to consider excluding disorders of oral and listening comprehension, but the Department is bound by the statutory definition of learning disabilities. On the other hand, IDEA 2004 identifies basic reading, reading fluency, reading comprehension, written expression, mathematics calculations, and mathematics problem solving as domains in which a learning disability may occur, so our proposal is aligned with IDEA 2004. Convergence between IDEA 2004 (which was an explicit attempt to align with research) and DSM5 would have positive implications for research and practice.

Wording Changes

For the overall definitional template, it is not clear why the definition is restricted to “basic academic skills.” In fact, learning disabilities occur for higher level skills involving reading comprehension, written expression, and mathematics problem solving in isolation of other academic and language problems (see below). Disabilities in these domains have significant implications for one of the main inclusionary criteria for learning disabilities in DSM5 – that a disturbance in these skills significantly interferes with academic achievement or activities of daily living. In addition, the reference to “average intellectual abilities” obscures the attempt to move away from an IQ- discrepancy criteria, and it is unclear what constitutes “average” intellectual abilities. Finally, it seems that reference to some traditional exclusionary criteria should be maintained. We recommend the following revision for a template:

“A group of disorders characterized by difficulties in learning **academic** skills (currently or by history), that are not consistent with the person’s **chronological age or educational opportunities, and that cannot be explained by the presence of an intellectual disability, sensory disorder, or emotional disorder.** Multiple sources of information are to be used to assess academic skills, one of which must be an individually administered, culturally appropriate, and psychometrically sound **norm-referenced** measure of academic achievement.”

In terms of the rationale for the wording change, we added “intellectual disability” instead of “at least average abilities” because it is not clear what constitutes “average” intelligence in children with LD. Researchers use a variety of different cut points that range from 70- 90. In addition, IQ test performance is determined in part by many of the same cognitive processes that impact the development of academic skills. The primary diagnostic distinction should be between academic disorders that are due to intellectual disability versus other academic disorders, such as learning disabilities, which may have a variety of sources. This is the only

reasonable distinction that can be made on the basis of the evidence because any other attempt to subdivide the IQ dimension is inherently arbitrary (Francis et al., 2005).

Likewise, with respect to the definition, we recommend that the different academic domains be coded as manifestations of this common definition, i.e., as subtypes in a classification of learning disabilities as opposed to separate disorders.

Additional Supporting Comments

1. The suggestion that disorders of written expression do not occur independently of reading disorder (dyslexia) seems to understate the evidence for written language disorders and the interventions that can be applied. Although it is certainly true that individuals with dyslexia typically have a written language (spelling) disorder, there is also evidence that such disorders occur in the absence of impairment in reading. Specifically, disorders of written expression are also associated with problems involving self-regulatory skills that affect many children with LD even in the absence of a reading problem. In the proposed diagnostic nomenclature, where would one code the written expression problems seen in a child with ADHD (Re et al., 2007)? Such coding may be essential to obtaining services and/or accommodations and evidence-based interventions exist for handwriting, spelling, and text generation (Berninger & Amtmann, 2003; Graham & Harris, 2003)? In addition, young children sometimes have written expression problems because of motoric impairments as their only area of impairment (i.e., dysgraphia; Berninger, 2004). Even spelling is impaired in some people with no impairment in other domains, usually as a milder phonological or orthographic processing problem. The literature on written expression disorders per se does not adequately identify co-occurring disabilities, but we believe that there is support for disorders of written expression that are not explained by reading disorders.
2. Including accuracy and fluency in a definition of dyslexia is reasonable and some consideration should be given to referencing the International Dyslexia Association definition of dyslexia (Lyon, Shaywitz, & Shaywitz, 2003), which is widely accepted in the research community. However, the DSM5 definition of dyslexia begs the question of reading difficulties in which fluency, but not accuracy, is impaired, which occur with and without word level difficulties (note Wolf's double deficit model; Wolf & Bowers, 1999). Given the interests of the DSM5 in aligning diagnostic criteria with languages other than English in which fluency difficulties in the absence of deficits in accuracy (and spelling) are often issues (Wimmer & Mayringer, 2002), it would seem reasonable to propose isolated disorders of reading fluency. This is especially appropriate for older individuals across languages in which the primary reading difficulty resides in the ability to read words, sentences, and passages with sufficient fluency to enable reading comprehension.

There are also situations where successful remediation has significantly reduced deficits in word reading accuracy without improvement in reading fluency and spelling. This frequently results in the removal of the diagnosis of dyslexia for the individual who continues to be dysfluent or a poor speller. Unfortunately, because of the persistent difficulties in reading fluency and reading comprehension, adaptive functions will be significantly compromised as

these individuals confront expanded content level text in the third grade and beyond. In addition, accommodations are often requested for people who have never had trouble with accuracy or spelling who are simply slow readers.

3. We do not think research supports eliminating reading comprehension as a specific category of learning disabilities because of the common co-occurrence with oral language disorders. Diagnostic criteria and cognitive phenotypes underlying communication disorders and comprehension disability, while sharing some features for some children, are more distinct than they are similar. The extent of non-overlapping phenotypes in these disorders has been used to argue against their combination (Bishop & Snowling, 2004). Although the causal underpinnings of disability in reading comprehension are not yet fully understood, the same discourse- or text-level skills are implicated in typical development of reading comprehension and in reading comprehension disabilities, and these are also the targets of effective interventions (reviewed in Fletcher et al., 2007; Vaughn & Klingner, 2004). Inference making and integration, comprehension monitoring and metacognitive knowledge about reading and repair strategies, and sensitivity to text/narrative structure (Oakhill, Cain, & Bryant, 2003; Perfetti, Landi, & Oakhill, 2005; Storch & Whitehurst, 2002) distinguish development and disabilities in reading comprehension from the cognitive correlates of word reading disability and from the core features of speech and language disorder. These difficulties can occur in the absence of problems in reading fluency and sentence-level comprehension (Long, Oppy, & Seely, 1997), and separately from or in addition to difficulties in vocabulary and syntax (Cain & Oakhill, 2007). Part of the issue here may involve the definition of oral language disorders. We read the concerns from the committee as indicating that reading comprehension problems are due to speech and language or decoding problems. We agree that any reading comprehension impairment may also be apparent in oral language, including discourse comprehension, but the discourse level difficulties per se are not explained by speech and language impairment.
4. We understand and appreciate the use of the term “dyscalculia.” However, some children display difficulties in mathematics that go beyond the concepts of numeracy and beyond arithmetic. Intact numeracy and arithmetic skills are a necessary but not sufficient factor in successful math performance (Fuchs et al., 2009). Indeed, it is mathematics problem-solving capabilities that are critical for success in school and the workplace, and numeracy is an incomplete means toward that end. The correlates of math disorders involving problem solving are clearly distinct from the correlates of a computational disorder (e.g., Fuchs et al., 2008; Fuchs et al., in press), and difficulty in math problem solving occurs without concomitant difficulty with calculations in approximately 25% of all students with mathematics learning disabilities at third grade (Fuchs et al., 2008). More importantly, for people with math problem-solving difficulties, there are well-validated interventions that do not focus on calculations (e.g., Fuchs et al., 2009), and Hart, Petrill, Thompson, and Plomin (2009) found that mathematics problem solving has different genetic and environmental influences than mathematics calculation. In addition, recent studies suggest that an intervention focused on problem solving can address difficulties with more fundamental computational difficulties (Fuchs et al., 2009, 2010).

Concluding comments

If useful, we could provide more extensive references for these recommendations; Fletcher et al. (2007) represents an extensive review and discussion of the scientific evidence relevant to the topics we are addressing in this letter. The review of evidence in this book was conceptualized within the context of a classification perspective that impacted the revision of IDEA 2004 and is also the basis for the classification we are suggesting. Perhaps the most compelling issue to consider is the range of interventions available for children with LD. There is a direct link from identification of academic disorders to cognitive functions and interventions, as well as to neurobiological factors in some reading and math disorders. A classification should link with evidence-based interventions. Since the DSM tends to shape identification as well as service delivery, a more inclusive, intervention-linked framework is encouraged.

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