Psychol. Inj. and Law (2017) 10:138–150
DOI 10.1007/s12207-017-9291-9

Clinical, Ethical, and Forensic Implications of a Flexible Threshold for LD and ADHD in Postsecondary Settings

Allyson G. Harrison[1]

Received: 1 June 2017 / Accepted: 1 June 2017 / Published online: 22 June 2017

Abstract Specific learning disabilities (SLD) and attention deficit hyperactivity disorder (ADHD) are lifelong neurologically based disorders diagnosed using objective and specific criteria. Evaluation of current practices indicates that many clinicians employ flexible thresholds for making these diagnoses, at least when evaluating young adults. Given that academic accommodations can provide significant competitive advantages and that students with these diagnoses may qualify for substantial government-funded subsidies and benefits, issues of fairness arise if the objective and research-informed criteria for making these diagnoses are not upheld. This paper investigates the extent to which flexible thresholds are being employed in these diagnoses and the clinical, ethical, and forensic implications that result if clinical standards are not upheld. Recommendations for improved training of professional are provided.

Keywords Assessment · Differential diagnosis · Non-credible performance · Accommodation · Postsecondary

As ensured by the Canadian Human Rights Act (R.S., 1985, c. H, s. 38; 2003, c. 22, s. 137(E)) and Section 15 of the Canadian Charter of Rights and Freedoms (1982), and various provincial Human Rights Codes, postsecondary students with bona fide disabilities are entitled to appropriate accommodations, services, and supports in their postsecondary programs any time the impairments that arise from their disability interfere with equal participation or with equal opportunity to demonstrate knowledge and skill. As a result, Disability Services Offices (DSOs) may provide such students with academic accommodations such as the following: provision of extra time for tests and exams, a note-taker, use of computer for writing exams, or testing in a separate room (Lee & Templeton, 2008; Nichols, Harrison, McCloskey, & Weintraub, 2002; Parette & Peterson-Karlan, 2007; Roberts, 2012). DSOs may also authorize the disbursement of disability-related tuition rebates and/or funding grants from federal or provincial governments (Government of Canada, 2017a, b; Government of Ontario, 2017).

For postsecondary students with disabilities to access such accommodations and financial supports, they must first provide their institution with documentation of their diagnosed disability, and they must demonstrate that their specific impairments necessitate the provision of the requested academic accommodations or supports (Ofiesh, Hughes, & Scott, 2004; Roberts, 2012; Sitlington, 2003). DSO staff are reluctant to question diagnoses provided by experts, as they assume that these professionals are diagnosing disabilities using objective, reliable, and agreed upon criteria. While physical or sensory disabilities that interfere with equal participation in an educational setting are diagnosed easily using objective and reproducible criteria, diagnosing neurodevelopmental disabilities such as specific learning disability (SLD) or attention deficit hyperactivity disorder (ADHD) is more difficult as no lab test or biomarker can verify if an individual truly has either disability. Given the lack of verifiability when making these diagnoses, concerns have been expressed about the overdiagnosis of SLD or ADHD in otherwise high-functioning individuals (e.g., Lerner, 2004; Tapper, Morris, & Setrakian, 2006; Vickers, 2010) especially in the postsecondary population (Harrison & Wolforth, 2012; Kelman & Lester, 1997; Nelson, Lovett, & Lindstrom, 2015).

✉ Allyson G. Harrison
harrisna@queensu.ca

[1] Regional Assessment & Resource Centre, Queen's University, Kingston, ON K7L 3N6, Canada

As such, and in contrast to documentation for most physical or sensory disabilities, there is reason to question whether clinicians employ non-standard criteria when they diagnose SLD and ADHD (Harrison & Wolforth, 2012; Joy, Julius, Akter, & Baron, 2010; McGuire, Madaus, Litt, & Ramirez, 1996; Nelson, Whipple, Lindstrom, & Foels, 2014; Sparks & Lovett, 2009b; Weiss, Erikson, & Till, 2016; Wolforth, 2012) interfering not only with reliable and valid diagnosis of these two disorders but also with equitable provision of academic accommodations and government funding. Use of flexible thresholds for making these diagnoses would therefore have far-reaching clinical, ethical, and forensic implications.

Are Clinicians Using Flexible Thresholds When Diagnosing SLD and ADHD?

For a student to qualify for academic accommodations or supports, one must typically demonstrate that the student experiences deficits in academic skills relative to most of their same-aged peers (e.g., Lovett, 2013; Lovett & Lewandowski, 2006). Some professionals have argued, however, that students can be diagnosed with learning disabilities even if they do not show normative deficits in achievement or academic impairment (Barber & Mueller, 2011; Gilman et al., 2013; McCoach, Kehle, Bray, & Siegle, 2001). From this perspective, a diagnosis is warranted if it can help students' access accommodations that might improve their academic performance. Surveys have shown that many clinicians who conduct adult SLD or ADHD evaluations view themselves as taking on such an advocacy role (Gordon, Lewandowski, Murphy, & Dempsey, 2002; Harrison, Lovett, & Gordon, 2013). The prevalence of using flexible diagnostic criteria as a manifestation of prioritizing advocacy over objective diagnostic criteria is an important empirical question.

Surveys suggest that many clinicians employ flexible thresholds for making the diagnoses of SLD and/or ADHD. For example, Handler and DuPaul (2005) compared the ADHD assessment practices of 230 psychologists and found that less than 16% of respondents used best practice assessment methods. While approximately 90% reported using DSM criteria as a guide for diagnosing ADHD, nearly 40% of the psychologists admitted they did not adhere strictly to these criteria when making this diagnosis.

More recently, Harrison, Lovett, and Gordon (2013) surveyed 110 psychological assessors who performed disability assessments to determine the need for academic accommodations in a postsecondary setting. The results (of the survey) revealed that assessors held misconceptions regarding diagnosis of SLD and ADHD. In particular, many (31%) did not know that problems only with multiple choice tests was not sufficient proof of lifelong impairment, 23% believed that one or two low subtest scores/test scores alone were proof of a disability, and most (77%) did not realize that impairments in academic functioning resulting from SLD or ADHD, both lifelong disabilities, could not first occur in graduate school.

Demonstrating the advocacy mentality, perhaps, 45% of respondents believed that the purpose of a clinical evaluation was to secure accommodations for their client, and almost 90% agreed that the purpose of accommodation in postsecondary education was to allow disabled individuals to perform at their best, rather than to ensure equal ability to compete/participate equally. The most worrisome finding, however, was that 14% of respondents admitted they would ignore some or all of the diagnostic criteria for SLD/ADHD to secure academic accommodations for their clients. This suggests that some clinicians take on an advocacy role using "flexible criteria" when making such diagnoses.

Research on SLD Diagnostic Practices

By definition, students with SLD must demonstrate normative deficits in an academic skills domain (e.g., not just on one subtest). The Diagnostic and Statistical Manual of Mental Disorders-fifth edition (DSM-5; American Psychiatric Association, 2013) notes that academic achievement in those with this condition typically falls below the 7th to 16th percentile, but in unusual circumstances may be at or below the 25th percentile. Numerous experts in the field (e.g., Fletcher, Lyon, Fuchs, & Barnes, 2007; Lyon, Shaywitz, & Shaywitz, 2003; Siegel, 1988, 1999; and Stanovich, 2005) have put forward similar definitions of SLD, emphasizing impaired academic achievement (functioning anywhere below at least the 16th to 25th percentile relative to most other individuals of the same age) as the core deficit of SLD. Other diagnostic criteria agreed upon by almost all definitions of SLD (Harrison & Holmes, 2012) include the lifelong nature of the disability, and, importantly, verifying that the impaired academic functioning is not due to another condition (e.g., lack of appropriate teaching, English as a second language, lack of motivation, etc.).

The use of research-informed diagnostic criteria is of great significance. Previously, clinicians employed a popular but now widely discredited approach to diagnosis of SLD whereby the presence of a marked disparity between an individual's IQ and performance on academic tasks was taken to signify the presence of SLD (Willis & Dumont, 2006). This method of diagnosis received widespread criticism based on psychometric flaws in the concept (Fletcher, Francis, Rourke, Shaywitz, & Shaywitz, 1992; Fletcher, Morris, & Lyon, 2003; Meyer, 2000; Restori, Katz, & Lee, 2009; Siegel, 1988, 1992, 2003a, b; Spear-Swerling & Sternberg, 1998; Stage, Abbott, Jenkins, & Berninger, 2003; Stanovich, 1991; Sternberg & Grigorenko, 2002; Vellutino, Scanlon, & Lyon, 2000) and the fact that the use of such a discrepancy was shown to overdiagnose those with above average intelligence

and no normative deficit in academic achievement, and underdiagnose those very individuals who had impaired academic performance relative to the average person (Reynolds & Suzuki, 2013).

Despite the existence of diagnostic codebooks to assist clinicians in making this diagnosis, studies have shown that individuals diagnosed with SLD are quite a heterogeneous group (Harrison, Nichols, & Larochette, 2008; Sparks & Lovett, 2009a, b). Research further suggests that many clinicians fail to follow any one diagnostic model consistently (Harrison, Nichols, & Larochette, 2008; Rosenblum, Larochette, Harrison, & Armstrong, 2009), or do not employ any accepted definition of SLD when making this diagnosis (Rosenblum et al., 2009; Sparks & Lovett, 2009b). The result of this inconsistency is confusion regarding who does or does not actually have a SLD, and more importantly, whether a student truly demonstrates an impairment in functioning that causes an inequality of participation at the postsecondary level.

For instance, Sparks and Lovett (2009a, b) reviewed 378 files of university students who had submitted documentation of a SLD diagnosis to qualify for academic accommodations. These investigators applied five sets of objective criteria for a specific learning disability diagnosis to determine whether the documentation actually demonstrated impairment sufficient to be considered disabling. Three of the five criteria were variations on the outdated discrepancy model requiring an IQ-achievement discrepancy of some type (2 standard deviations (SD), 1.5 SD, or 1 SD) as the only criterion for diagnosis. The fourth classification scheme was based on impaired academic achievement relative to most people, demonstrated by scoring below average in at least one academic area. The fifth classification method required that the student's school-based impairment (described in the fourth classification scheme) had also been lifelong. These authors found that only 54% of the assessment reports provided by these students met the most lenient of all the definitions used (1 SD discrepancy). Fewer than 10% showed evidence of academic impairment relative to the average person. In addition, less than 7% had evidence of lifelong impairment in academic functioning. These authors conclude that there need to be more consistency in how a diagnosis of SLD is made.

Others have voiced similar concerns with respect to lack of adherence to the DSM diagnostic criteria by practicing clinicians. Ferrari (2009), for instance, reported on the outcome of updated assessments for 176 vocational rehabilitation clients with a previous diagnosis of SLD. In total, only 22% met "the general spirit" of the DSM-IV (APA, 2000) criteria for either a reading or math disorder (defined as at least a 1.5 SD difference between one measure of intelligence and one measure of achievement), and only 57.9% showed a discrepancy of at least 1 SD. Furthermore, almost half of those previously diagnosed as SLD actually had overall intelligence scores below 80, contrary to the requirement for at least average intelligence as listed in DSM-IV. Ferrari concluded that a previous diagnosis of SLD is not sufficient to ensure that the individual would currently meet the diagnostic criteria for such a disorder and appealed to clinicians to adhere to accepted criteria when first making this diagnosis.

More recently, Weiss and his colleagues examined the extent to which postsecondary students diagnosed with SLD met any objective criteria for this diagnosis. In both community college (Weiss, Speridakos, & Ludwig, 2014) and university (Weiss et al., 2016) samples, they showed that a number of students currently receiving academic accommodations failed to meet any objective criteria for this diagnosis. However, a higher proportion of the community college sample (82.3%) demonstrated a normative weakness in some area of academic functioning. By contrast, none of the university students showed evidence that they met the strict DSM-5 diagnostic criteria for SLD, and only 3.9% met the DSM-IV criteria. Using a simple discrepancy formula (1 SD below intellectual functioning in one area of academic achievement) accounted for only 22.7% of the total number of students currently accommodated for SLD.

Examining measures of academic fluency (e.g., speed of reading, writing or math calculation ability) alone also failed to support the diagnosis in the majority of cases reviewed by Weiss et al. (2016), with only 36% showing a 1 SD difference between IQ and one academic fluency measure. Overall, the authors note that the vast majority of university students accommodated for SLD showed no normative deficit in academic abilities but instead were diagnosed using flexible criteria relative to their aspirations or the elite company they kept at university. Weiss et al. (2016) question the accuracy of the SLD diagnosis in the majority of these cases. The authors note that these indiscriminate diagnostic practices using flexible thresholds erode the credibility of the SLD diagnostic label and the validity of psychology as a science, essentially making the diagnosis meaningless.

Research on ADHD Diagnostic Practices

The issue of flexible criteria also applies to the diagnosing of young adults with ADHD. Research indicates that clinicians rely heavily or exclusively on self-reported symptoms when making a diagnosis of ADHD rather than utilizing all of the other diagnostic criteria set out in DSM. For example, Joy et al. (2010) reviewed diagnostic documentation provided by 50 applicants who requested accommodations on the medical licensure exam for osteopathic physicians (the Comprehensive Osteopathic Medical Licensing Examination (COMLEX)) due to ADHD. Four ADHD experts reviewed the files independently to determine whether each file contained sufficient evidence of evaluating/addressing each of the five official diagnostic criteria for ADHD found in the

Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000). Although all 50 had received a DSM-IV diagnosis of ADHD, only seven of the files (14%) included sufficient evidence of meeting all five ADHD diagnostic criteria. Additionally, more than 40% of files lacked sufficient evidence of clinical impairment in real world functioning (one of the DSM criteria related to the need for academic accommodations), and only 28% included a discussion that alternative explanations for ADHD symptoms had been ruled out. Joy et al. conclude that clinicians appear to be ignoring the full criteria for making this diagnosis, at least in their sample of applicants, and suggest that this makes it difficult to know whether such applicants actually qualify for disability-related accommodations.

More recently, Nelson et al. (2014) reviewed 100 diagnostic reports provided by postsecondary students requesting accommodations for ADHD. These authors found adherence to all DSM-IV-TR criteria was poor. Apart from confirming self-report of current symptoms, only one of the 100 reports actually demonstrated that all five DSM diagnostic criteria were assessed, with just over 50% documenting two or fewer criteria.

Reviewing the fidelity with which other diagnostic criteria for ADHD required in DSM-IV-TR were demonstrated, they found the following: documentation of symptoms across two or more settings (found in only 28% of reports), documentation that symptoms were present in childhood/early adolescence (found in only 55% of reports), review of objective records (<1/3 of reports), and evidence that other reasonable causes for current complaints were ruled out (found in only 14% of reports). The vast majority relied simply on current self-report when making this diagnosis, ignoring the fact that this is a lifelong disorder that should have a documented history of the negative impact that the ADHD symptoms had on the individual in multiple settings, since childhood. Additionally, most reports made recommendations for academic accommodations (87%) even though only 51% documented any academic impairment. These discrepancies suggest an advocacy role rather than a diagnostic one.

Together, these empirical studies of SLD and ADHD diagnoses show two consistent findings. First, considerable variability exists in the criteria employed when making these diagnoses. Second, a "flexible threshold" for diagnosis essentially means that the best practice has been ignored, and clinicians frequently render diagnoses in the absence of strong objective evidence that the criteria for a condition have been met. When assessment techniques are so variable and identification practices so often fail to adhere to official criteria, prior diagnoses become questionable and hence, cannot be taken as evidence of the presence of a condition, let alone the need for academic accommodations or financial supports. Importantly, this means that there may be no real distinction in terms of actual academic ability between those who receive accommodations for SLD/ADHD and those who do not. In other words, the predictive power of such a diagnosis is questionable at best, and non-existent at worst.

Clinical Implications

In order to provide appropriate services and supports to persons with a particular diagnosis, there must first exist an agreed upon definition for such a diagnosis. Most physical disabilities (e.g., blindness, deafness, paraplegia, etc.) have specified, agreed upon, and objective criteria for diagnosis. Despite almost half a century of research, however, the research reviewed above suggests that many clinicians still fail to subscribe to any existing method of diagnosing either disability and sometimes make these diagnoses even when no actual academic impairment exists. By not following existing standards for making such diagnoses, clinicians run the risk of having an excessively high false positive rate, leading to both inappropriate/unnecessary interventions and diminished credibility of the diagnoses themselves. Further, if individuals who do not meet accepted diagnostic standards are nevertheless given these labels, it creates problems when researchers attempt to identify commonalities in cause, symptoms, or even genetic roots of these conditions.

Normative impairment is documented infrequently in SLD assessments submitted to postsecondary DSOs. Clinicians who, for example, employ "grade-based" norms when determining if a student has an academic impairment increase the risk that SLD will be discounted as a "made up disability" and psychology perceived as a pseudoscience. Indeed, if diagnostic decisions are based exclusively on IQ-achievement discrepancy (a discredited but still often employed method of SLD diagnosis) and employ grade-based norms (comparing the student not to same-aged peers but only to those at the same level of postsecondary education), this practice would increase the base rate of this diagnosis from 7 to 38% (Cressman & Liljequist, 2014). These authors caution that the use of grade-based norms would lead to an over-identification of SLD in postsecondary students. Nevertheless, recent research (Harrison, Lovett, & Keiser, in preparation) identified that a high proportion of documents submitted to demonstrate the need for accommodation on high-stakes licensing examinations used this grade-based method to qualify clients as having a disability. Clearly, a diagnosis of SLD alone is not sufficient to demonstrate the need for accommodations in the postsecondary sector under existing human rights legislation, as the label alone is unreliable, and may not provide enough evidence that the person has an unequal opportunity to participate. In fact, in the light of the research reviewed above, it is uncertain whether they would meet objective standards for the diagnosis itself.

When diagnosing ADHD, it appears that clinicians rely most heavily on self-reported symptoms. Clinically, this is problematic for a number of reasons. First, individual symptoms of ADHD are non-specific, as they are often present in the general population (Garden & Sullivan, 2010; Harrison, 2004; Lewandowski, Lovett, Codding, & Gordon, 2008; Suhr, Zimak, Buelow, & Fox, 2009; Wang, Chan, & Deng, 2006). For instance, studies show that between 59 and 73% of normal, non-disabled university students endorse problems with "poor concentration", 45–57% report "memory problems" (Garden & Sullivan, 2010; Wang et al., 2006), and 37% report difficulty with reading (Garden & Sullivan, 2010). Self-report questionnaires have a very high false positive rate (Harrison, Nay, & Armstrong, 2016; Harrison, Alexander, & Armstrong, 2013), meaning that clinical elevation on a self-report checklist alone has a 75–80% chance of incorrectly identifying an individual as having ADHD.

Second, many symptoms associated with ADHD are also found in a number of other psychological disorders (Suhr, Hammers, Dobbins-Buckland, Zimak, & Hughes, 2008). For instance, individuals suffering from depression or anxiety frequently experience difficulty with memory, agitation, or inability to concentrate (APA, 2000). Van Voorhees, Hardy, and Kollins (2011) found that many individuals with psychiatric disorders other than ADHD also produce elevated scores on the Conners' Adult ADHD Rating Scale (CAARS; Conners, Erhardt, & Sparrow, 1999). Consistently, first year psychology students with no history of ADHD produce scores on the CAARS, including the ADHD index, that are associated positively with self-reported symptoms of stress, anxiety, and depression, as measured by the Depression, Anxiety and Stress Scale (Harrison, Alexander, & Armstrong, 2013). In other words, higher levels of experienced distress are associated with a higher number of reported ADHD symptoms, even in those with no history of ADHD.

Third, impairment arising from the symptoms is a necessary component in the diagnosis of both ADHD and SLD. Nevertheless, most clinicians appear to use self-reported symptoms as a proxy for level of impairment. This is problematic as symptoms of ADHD alone are correlated only moderately with actual impairment (Gathje, Lewandowski, & Gordon, 2008; Gordon et al., 2006). Therefore, high endorsement of symptoms alone does not guarantee that the individual is impaired in some area of functioning (see Suhr, Cook, & Morgan, 2017, for a more detailed description of issues involved in documenting impairment in ADHD).

Practitioners who conduct these types of assessments should be concerned that they are frequently perceived as biased (i.e., acting as advocates and as such, being invested in certain outcomes) rather than objective reporters of fact (Wolforth, 2012). Paradoxically, such advocacy undermines both the assessor's ability to correctly identify the actual needs of the student and the validity of the diagnosis being made. One hypothesis is that the additive combination of confirmatory bias, illusory correlations, and/or situational expectation interfere with the decision-making abilities of professionals. Clinical judgment has long been known to be prone to both random and systematic errors (i.e., bias; Garb, 1998; Kahneman, 2011). Multiple researchers (e.g., Gnys, Willis, & Faust, 1995; Kahneman, 2011; Garb, 1998, 2013) have identified the tendency of psychologists to form false associations, such as between a particular response pattern on a psychological test and a specific classification, leading to diagnostic errors. The estimated frequency with which psychologists make various types of decision-making errors is high (see Millis, 2009 for an extended review of this issue). Alternatively, another suggestion as to why so many clinicians ignore or discount existing diagnostic criteria when making these diagnoses is that the customer (parents of a child; adult clients) typically pays for private assessments. Private clinicians derive their livelihood from referrals and so may be reluctant to not provide the product (diagnosis) that is being paid for (Harrison, Lovett & Gordon, 2013). Regardless of the reasons, the end result is that clinicians often fail to follow accepted and research-informed methods when diagnosing SLD and ADHD.

Ethical Implications

The purpose of accommodation is to allow for the equal, but not enhanced, participation of students with bona fide functional impairments. The literature reviewed above calls into question the validity of many (if not most) SLD/ADHD diagnoses provided to students currently receiving academic accommodations in the postsecondary system. Although clinicians may feel that recommending academic accommodations such as extra time cause no real harm, even in the absence of normative impairment, this practice actually raises "deep and difficult issues of fairness and equity" (Lovett, 2013, p. 8). Indeed, in contrast to academic accommodations that allow for equal but not unfair access for those with physical disabilities (e.g., braille for students with visual impairments, ramps into buildings to assist those with mobility impairments), most of the academic accommodations provided to students with SLD and ADHD would improve the performance of non-disabled students as well (Gordon, Murphy, & Keiser, 1998; Sireci & Hambleton, 2009; Sireci, Scarpati, & Li, 2005).

For example, research evaluating the benefit of providing extra time on tests has shown that provision of more than time and a quarter actually provides an advantage to SLD examinees relative to other non-disabled postsecondary students (Lewandowski, Cohen, & Lovett, 2013). Additionally, while student with bona fide reading problems obtain an advantage if more than 25% extra time is given, any extra time provides an unfair advantage if the accommodated test taker does not truly have a reading impairment. This creates a clear ethical

dilemma given that the typical accommodation provided to most students with disabilities at the postsecondary level is, at minimum, 50% extra time (Harrison & Wolforth, 2012).

The impact of the disability on performance is not the same for those with a diagnosis of ADHD compared with SLDs. Miller, Lewandowski, and Antshel (2015) found that the ADHD group did not differ from non-disabled students on a timed reading comprehension test and that both groups benefitted equally from extra time. Notably, those with ADHD actually completed more items than their peers when they were given extra time and their non-labeled peers were not. The authors conclude that extra time provides an advantage to the group with ADHD and may therefore not be a justifiable accommodation.

Unfortunately, data suggest that some parents and students fully understand the academic benefits associated with such accommodations and are gaming the system to obtain these diagnoses. Lester and Kelman (1997) were the first to identify that the prevalence of SLD diagnoses, unlike physical disabilities, was correlated substantially with parental income and education level. Further, they noted that the median family income of students receiving accommodations on the Scholastic Aptitude Test (SAT) was 50% higher than that of non-accommodated test takers. By contrast, racial minority students were 50% less likely to receive accommodations on this test. Similar findings linking SLD diagnoses to high parental socioeconomic status continue to surface (e.g., Reschly & Hosp, 2004). Further, multiple reports from the USA show that the basis for providing extra time on high-stakes examinations such as the SAT and ACT (American College Testing) are questionable in almost one fifth of the cases (e.g., California State Auditor, 2000), or are provided disproportionately to students from affluent neighborhoods (Abrams, 2005; California State Auditor, 2000; Mitchell, 2012; Tapper et al., 2006; Vickers, 2010). In fact, the practice of getting one's child assessed for the purpose of accessing extra time on high-stakes entrance exams has been dubbed "the rich kids loophole" (Tapper et al., 2006). When a disproportionate number of children from affluent neighborhoods are not only getting extra time but also the best marks on the SAT while no students from inner city Los Angeles schools were provided with disability-related accommodations on this test, one must question the fairness of such accommodation decisions (Abrams, 2005). The current system may inadvertently provide preferential treatment to those who were able to obtain costly assessment reports. As such, it violates basic principles of social justice, and works against the greater good, placing underprivileged students with disabilities at further disadvantage. Lester and Kelman (1997) suggest that this is a clear example of the socioeconomically privileged leveraging further social advantage for their offspring.

Other academic accommodations would provide a benefit to all students as well. For instance, while those with SLD and ADHD may benefit from using technology to organize their ideas and improve spelling and handwriting, the majority of non-disabled postsecondary students also feel that such technology would improve their academic performance (Lewandowski, Cohen, & Lovett, 2013). Indeed, in an age where the majority of students frequently use computer technology for communication, it is no stretch to imagine that access to a computer for taking tests and exams would be desirable, especially when your peers must handwrite and cannot utilize options such as spellcheck, grammar check, or cut and paste functions. Given that Canadian students with disabilities may have a laptop purchased for them using monies from a federal government grant (Harrison, 2004, 2006; Harrison, Edwards, & Parker, 2007), clinicians may feel pressured to recommend that their clients require this accommodation due to the diagnosed disability even if the client has no normative impairment in writing. In a social justice model, how can one justify use of government funds to purchase laptops for some students simply because they obtained a disability label, especially when the basis for that diagnosis may be in question and when all students would benefit such technology?

Students with a diagnosed disability may also be eligible for a disability tax credit (Canada Revenue Agency, 2017), and disabled students may qualify to have their student loan forgiven (Harrison, 2006). Additionally, postsecondary students in Canada diagnosed with a permanent disability are eligible for a substantial postsecondary tuition rebate (up to $2000/year) and up to $10,000/year in bursary funds (Government of Canada, 2017a, b; Government of Ontario, 2017). Even if not intentionally feigning disability symptoms, one must question the fairness of providing such government subsidies to students who were given a diagnosis in the absence of normative impairments. Despite the best intentions, these grants may inadvertently create undue financial pressures for clinicians to indiscriminately give the necessary diagnoses to "help clients qualify" for such benefits.

Forensic Implications

One might wonder, given the advocacy and financial contingencies present in clinical assessments whether students would even need to feign or exaggerate SLD or ADHD in order to access accommodations, financial supports, or to get access to stimulant medications. The presence of external incentives alone may be enough to perpetuate a strong bias towards granting a diagnosis. However, research shows not only that young adults do feign but also that they can do so easily and without any real risk of detection.

ADHD affects approximately 7% of school-aged children (Centers for Disease Control and Prevention, 2014) and about 4.4% of adults in North America (Kessler et al., 2006). SLDs are said to affect about 8% of children in the USA (Centers for Disease Control and Prevention, 2014), 3% of children in

Canada (Statistics Canada, 2007), and 2.3% of Canadians over age 15 (Statistics Canada, Canadian Survey on Disability, 2012). By contrast, a number of studies suggest that the base rate for suspected exaggeration/low effort in young adults being assessed for SLD/ADHD is actually higher than the base rates for the actual disorders: for SLD, 15% of young adults undergoing assessments for this condition have been identified as feigning or exaggerating their symptoms (Harrison & Edwards, 2010; Sullivan, May, & Galbally, 2007); for ADHD, the rate of feigning may approach 50% (Sullivan et al., 2007).

Not only have studies found a high level of non-credible performance during assessment for these disorders in young adults but also that those who are deliberately feigning can perform in a manner that is indistinguishable from those who truly have those conditions on both achievement tests and self-report measures (Harrison, Edwards & Parker, 2007, 2008; Harrison, Edwards, Armstrong, & Parker, 2010; Jachimowicz & Geiselman, 2004; Lindstrom, Coleman, Thomassin, Southall, & Lindstrom, 2011; Quinn, 2003; Suhr et al., 2008; Sullivan et al., 2007). Such exaggeration is typically undetected by assessors who rely on clinical judgment to identify non-credible responding (Faust, Hart, & Guilmette, 1988; Faust, Hart, Guilmette, & Arkes, 1988). This is one of the many reasons why consensus statements crafted by most neuropsychological organizations now include advice about assessing for non-credible performance (Bush et al., 2005; Heilbronner et al., 2009; Iverson, 2006), as they recognize the need to make diagnostic decisions based on valid data.

In a recent survey, Canadian postsecondary disability services office staff agreed that SLD/ADHD were the disabilities most easily feigned in an educational context, followed closely by psychological disorders such as anxiety. Hearing and visual impairments, by contrast, were judged to be the most difficult to feign (Harrison & Wolforth, 2012). If the base rate for exaggerating or feigning these disorders is significantly higher than the population base rate, it stands to reason that a clinician has a higher likelihood of testing someone who is presenting with non-credible as opposed to credible symptoms of these conditions.

A clinical diagnosis of ADHD is based mainly on interview data and symptom report checklists (Jachimowicz & Geiselman, 2004) and such methods are extremely susceptible to feigned impairment. Indeed, multiple studies (e.g., Booksh, Pella, Singh, & Gouvier, 2010; Harrison & Edwards, 2010; Harrison, Edwards & Parker, 2007, 2008; Jachimowicz & Geiselman, 2004; Quinn, 2003; Sollman, Ranseen, & Berry, 2010; Suhr et al., 2008) have shown how easily both naïve and coached college-aged students can feign believable symptoms on all major ADHD self-report inventories, including exaggeration of historical as well as current symptoms.

In an attempt to obtain more objective evidence of ADHD symptoms, computerized vigilance tests are often used by clinicians to diagnose ADHD, even though their specificity and sensitivity are weak (e.g., Schatz, Ballantyne, & Trauner, 2001). Research shows that postsecondary students can easily feign symptoms of ADHD on these tests as well (e.g., Leark, Dixon, Hoffman, & Huynh, 2002; Quinn, 2003). Indeed, Leark et al. (2002) showed that college students with no history of ADHD or psychological problems could produce a profile on a computerized vigilance test, the Test of Variables of Attention (TOVA; Greenberg, 1991) that was interpreted to indicate abnormal attention abilities. They concluded that clinicians should consider response bias when patients obtained excessively elevated scores on the TOVA. Both Sollman et al. (2010) and Booksh et al. (2010) reported similar findings using the Conners' Continuous Performance Test (CPT; Conners, 1995), suggesting that students could easily feign believable attention problems on the CPT, too. Finally, Suhr, Sullivan, and Rodriguez (2011) found that individuals who responded in a non-credible manner (e.g., failed two or more Word Memory Test (WMT; Green, 2003) indices) were more impaired on the CPT than either those with a diagnosis of ADHD or those endorsing clinical levels of psychological symptoms. Hence, research to date indicates that most commonly used CPTs are easily feigned in clinical settings. Although embedded validity indicators have been developed within the CPT-II for other clinical populations such as traumatic brain injury (Erdodi, Roth, Kirsch, Lajiness-O'Neill, & Medoff, 2014; Lange et al., 2013; Marshall et al., 2010; Ord, Boettcher, Greve, & Bianchini, 2010), these cutoffs have not been validated in ADHD.

A number of researchers have also shown how easily students feigning ADHD can manipulate performance on various cognitive and achievement tests. For instance, Harrison et al. (2007) demonstrated that students asked to feign ADHD could produce scores on tests of reading and processing speed on the Woodcock–Johnson inventory (Woodcock, McGrew, & Mather, 2001) consistent with significant academic impairment. Other authors (e.g., Booksh et al., 2010; Frazier, Frazier, Busch, Kerwood, & Demaree, 2008; Sollman et al., 2010; Suhr et al., 2008) have demonstrated that college students feigning ADHD can easily obtain impaired scores on a variety of commonly used tests of executive functioning, academic achievement, and/or speeded reading comprehension. In all cases, students feigning ADHD were able to produce test scores that were equivalent to or more impaired than those produced by students with genuine ADHD. These studies suggest that given the right incentive, students could easily manipulate a psychoeducational assessment and qualify as being disabled.

Similarly, postsecondary students motivated to feign specific reading disorders (RD) can do so easily on tests of phonological awareness, word decoding, reading and processing speed (Frazier et al., 2008; Harrison, Edwards & Parker, 2008; Harrison et al., 2010; Lindstrom et al., 2011), rapid naming

and phonological processing (Lindstrom et al., 2011), and other tests of academic fluency (Sullivan et al., 2007). Similar to the findings with feigned ADHD, studies all find that students asked to feign RD can achieve test scores equal to or more impaired than those with genuine reading impairments. In fact, Lindstrom et al. (2011) concluded that students feigning RD produced test score profiles that were "disturbingly sophisticated" (p. 316), easily meeting commonly used diagnostic criteria such as "performing below average on psychoeducational tests." As such, it is likely that students actively attempting to feign RD could produce test scores that would be interpreted as indicating a substantial impairment in academic functioning and qualify for test accommodations or disability benefits.

The general consensus is that clinicians not only need to include measures of both performance and symptom validity in all assessments but must also believe the symptom invalidity results when positive. The advice given by experts in the field suggests including validity tests that sample different types of skills (Larrabee, 2011; Larrabee, 2014a; Victor, Boone, Serpa, Beuhler, & Ziegler, 2009), and that failure on more than one of these tests is highly predictive of non-credible performance (Boone, 2009; Larrabee, 2014b; Victor et al., 2009). Passing a symptom validity test (SVT) such as those included on self-report personality questionnaires during a SLD/ADHD assessment is not proof of a genuine disorder because those may only be sampling a tendency to exaggerate psychiatric disorders (Sullivan et al., 2007). Conversely, clinicians must be cautious, as a questionable score on such validity tests does not negate the possibility that person has a genuine disability. Instead, it simply identifies that the signal to noise ratio in the test results is so skewed in favor of noise that the clinician cannot validly determine which scores are an accurate reflection of the individual's true abilities.

Many clinicians fear that using such validity tests may falsely identify individuals with bona fide neurological disorders (Bigler, 2012, 2014). However, this has not proven to be the case (see Harrison, 2015, for an extended discussion of this issue). Suffice it to say that children with severe intellectual disabilities are able to pass most performance validity tests (PVTs), as can children with lifelong reading or attention disorders. Indeed, with the exception of children whose reading is so profoundly impaired that it falls below the first percentile, or children whose attention skills are so profoundly impaired that they require 24-h support services, young children with both of these disorders are able to pass PVTs easily (Harrison, 2015). This is consistent with the conclusion reached by DeRight and Carone (2013) in their literature review. They argue that most children, even those with known neurological disorders, are capable of passing free-standing PVTs. By far, the bigger problem is that most clinicians tend to discount or ignore PVT failures and are reluctant to interpret them as evidence of non-credible presentation (Harrison, Green, & Flaro, 2012).

Conclusion

From the research reviewed in this paper, it is clear that simply having the diagnosis of ADHD or SLD in a psychoeducational assessment report does not guarantee that a postsecondary student meets accepted criteria for a permanent disability. A diagnostic statement alone does not ensure that the student suffers from impairments that would cause an unequal opportunity to participate academically relative to most other people, the benchmark by which academic accommodations are determined at the postsecondary level. Many clinicians employ flexible criteria for making these diagnoses, and students can also manipulate the assessment process in order to obtain a desired diagnosis. All of this makes it extremely difficult for DSO staff at postsecondary institutions to determine whether disability-related accommodation and financial support requests are reasonable and equitable.

How Can We Correct this Situation?

First and foremost, clinicians and special education professionals need more thorough research-informed training in assessment, accommodation, and decision-making. Nowhere in Canada is specific training required of professionals to arrive at a diagnosis of SLD or ADHD, apart from registration with a provincial licensing body (Philpott & Cahill, 2008). Although psychologists and other professionals have an ethical duty to obtain all necessary training needed to be competent in their chosen areas of practice, it appears that many clinicians who author such assessment reports fail to consistently apply appropriate diagnostic criteria. Confronting assessors with the unintended consequences of their assumed role of advocate rather than objective evaluator of the client's functioning (i.e., putting others, often the socioeconomically underprivileged students, at a disadvantage) may reverse the perception of a moral imperative to grant every client access to special accommodations.

Private practitioners who perform diagnostic evaluations, as well as school psychologists, need specific training in how to make these diagnoses using existing guidelines, and be made particularly aware of the common decision-making errors to which clinicians are vulnerable when performing disability evaluations. More importantly, they need clearer guidelines for when academic accommodations may be recommended at the postsecondary level and an understanding that the purpose of such accommodations under human rights legislation is not to allow someone to perform "at their best" or make the testing experience more comfortable. Without a better understanding of the obstacles that interfere with accurate diagnosis and an awareness of the purpose of accommodations at the postsecondary level, clinicians are likely to overdiagnose and overrecommend accommodations.

Second, institutions who are mandated to provide disability-related accommodations and financial aid to diagnosed students may wish to retain independent experts to review disability documentation and accommodation requests. Given that SLD and ADHD are invisible disabilities, such institutions have the right to request as much information as needed in order to understand how the impairments that flow from any diagnosed condition interfere with the person's equal participation in a particular setting (Roberts, 2012). Such a vetting system has the potential to increase the accuracy and transparency of accommodation decisions—and ultimately, restore social justice. Given the variable and haphazard processes through which SLD and ADHD are diagnosed and eligibility for special accommodations are determined prior to postsecondary education, careful reviews of documentation and academic requests seems warranted.

Third, postsecondary institutions should consider removing time limits for any types of tests/exams where speed is not an essential skill being measured. If speed is not an essential component of the skill being measured then imposing time limits on such tests is simply an arbitrary constraint. In such cases, all students should be offered unlimited time to complete such tests (and a word processor for essay-type exams) so that no advantage is provided to any students. Giving extra time to only some groups of students when all would benefit is difficult to justify. Conversely, in courses where speed of completion is shown to be an essential skill, no students should be granted additional time. While postsecondary institutions may not like this option, it will surely be more cost-effective and defensible than providing individually tailored accommodations to 30% or more of the student population, a situation that currently exists in at least some postsecondary institutions (Harrison, 2017).

Finally, postsecondary institutions should consider the option of complaining to the bodies that govern practice of psychologists and physicians if they obtain disability documentation that is clearly biased or which does not demonstrate that diagnostic standards were employed when making the diagnosis. DSOs could indicate that they rely on the unbiased opinions of highly qualified professionals to ensure that students with disabilities are accommodated appropriately, and they are concerned that the opinions expressed by a given professional were not based on objective information but rather on the wishes of the client. They could point out that some of the accommodations recommended would actually provide the student with an unfair advantage over other students. DSO staff could emphasize the need to trust that members of that profession will provide their office with unbiased opinions based on defensible, empirically supported criteria as opposed to acting as advocates. Given that such regulatory bodies have a duty to protect the public from the negative actions of psychologists or physicians, they will likely consider such complaints carefully. A redacted version of the report could be included with such a complaint, identifying only the professional and not the student about whom the report was written, as this is acceptable practice when making complaints about regulated professionals.

In his article entitled "Head starts and extra time," Pardy (2016) questions the ethics of providing accommodation to students who are all competing academically. The thrust of his argument is that, because extra time when writing exams would benefit all students then such an accommodation confers a competitive advantage when given only to students with disabilities. This is especially true if the basis of such diagnosis is empirically questionable.

Stanovich (1999) made a similar argument, saying that in postsecondary school "grades are allocated on a zero-sum basis like every other educational resource." (p. 357), meaning that provision of achievement-enhancing accommodations provided to only some students is unethical and changes the way in which academic performance is measured. In this relative grade penalty, he notes that this arbitrary accommodation provision system means, "one person's gain is another's loss" (p. 357). If we cannot establish a valid, objective, and reliable way to determine how "impaired" a student with a disability diagnosis is relative to most other students, then it is not fair to provide accommodations that would benefit all to only a select few.

If psychologists and medical practitioners continue to employ flexible thresholds for making these diagnoses, there exists a real risk that accommodations will be recognized by the non-disabled community as unfair and discriminatory, particularly if the diagnostic labels continue to be provided freely to students who are not truly disabled. As Stanovich (1999) predicted, non-diagnosed students may rightly question the rationale upon which such differential treatment and differential allocation of resources is based, especially when the students with a disability label do not differ in any meaningful academic sense from their peers who did not obtain such a label. In a discrimination lawsuit, non-accommodated students could present research evidence to demonstrate that provision of accommodations such as extra time, memory aids, and access to a word processor are accommodations that would benefit all students and hence provide those registered at the DSO with an unfair academic advantage. To quote Stanovich (1999), "that would be a lawsuit the LD field deserves" (p. 353), as he predicted that the non-disabled students with average range achievement would win.

It is disappointing to report that nothing substantial has changed since Stanovich (1999) accused psychology of being a pseudoscience because we did not adhere to research-informed methods of making SLD diagnoses, leaving the field vulnerable to public criticism and lack of trust in our diagnoses. From this review, it appears that psychologists, in general, still fail to adhere to even "the general spirit" of any objective standards for making the diagnoses of SLD or ADHD,

especially in teens or young adults. Almost 20 years after both Stanovich (1999) and Siegel (1999) railed about the lack of standards used to diagnose disabilities at the postsecondary level, it still seems that a depressingly large number of postsecondary students are provided with performance-enhancing accommodations and tuition subsidies based on vague and empirically unverified diagnoses. Further, it seems that those with a diagnosis are likely not much different in academic performance than their non-disabled peers, calling into question the science and legitimacy of SLD and ADHD diagnoses.

Of course, this does not mean that all students with these labels are being provided with unreasonable or unjustified accommodations and subsidies; far from it. The issue, however, is that when psychology as a science cannot reliably or consistently make such diagnoses, it waters down the credibility of these diagnoses, rendering them meaningless. Furthermore, it undermines the legitimacy of the need for accommodations for those students who truly have cognitive or academic impairments and may ultimately lead to their losing the very accommodations and supports that allow them an equal opportunity to participate in postsecondary education. It would be an unfortunate outcome if those who are gaming the system for a leg up or the professionals who bend the rules to enable unwarranted accommodations for their clients undermine the legitimacy of the entire system designed to support those who are truly disabled. It is time for the field to recognize that "flexible threshold' is all too often a euphemism for an arbitrary decision-making algorithm designed to provide a diagnosis for anyone who can afford to pay for a psychoeducational or neuropsychological assessment.

Acknowledgements I gratefully acknowledge Dr. Irene Armstrong for her assistance with the editing of this article. Completion of this article was possible through the generous funding of the Ministry of Advanced Education and Skills Development of Ontario. The opinions as expressed in this paper are those of the author and do not necessarily reflect those of the funder.

Compliance with Ethical Standards

Conflict of Interest I declare that I have no conflict of interest.

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