Cultural Issues: Treating & Diagnosing ADHD

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Abstract

ADHD refers to a diagnostic category applied to children exhibiting inattention, impulsivity, and hyperactivity. Approximately 1.2 to 2 million children are currently diagnosed with ADHD, making ADHD is considered to be the most common child psychiatric diagnosis in the United States. Public schools are constantly faced with the over-representation of students from minority populations in special education. Children with ADHD may be protected by three federal statutes: Section 504 of the Rehabilitation Act of 1973 (Section 504), the Americans with Disabilities Act of 1990 (ADA), and the Individuals with Disabilities Education Act, Part B (IDEA). Given that minorities constitute approximately one-third of the public school population, the purpose of this paper is to obtain a better understanding of the role culture plays in the diagnosis and treatment of ADHD.

Cultural Issues on the Diagnosis and Treatment of ADHD

ADHD refers to a diagnostic category applied to children exhibiting inattention, impulsivity, and hyperactivity (Barkley, 1990; Cantwell, 1996). Cantwell (1996) explains that ADHD begins early in life, is persistent over time, pervasive across settings, and functionally impairs home, school or leisure activities. It has been estimated that ADHD occurs in approximately 3% to 5% of children in the United States (American Psychiatric Association, 2000; Berkley, 1998; Cantwell, 1996). According to Barkley (1990), the etiology of ADHD is unknown, yet its expression is believed to be the interaction of both psychosocial and biological factors (Barkley, 1990). Research suggests that the difficulties children endure as a consequence of this syndrome may affect their developmental trajectory and can result in impaired adult productivity and well-being (Manuzza et al. 1991; Manuzza et al. 1993). In order to effectively treat ADHD, the American Academy of Child and Adolescent Psychiatry recommends that not only a pharmacological treatment be used but a psychosocial treatment as well (AACAP, 1997). Individuals with ADHD oftentimes do not receive adequate pharmacological or psychosocial treatment. This is especially true for Hispanics and other persons belonging to an ethnic minority group (Jensen et al. 1999, Bussing et al. 1996). This is of special importance given that ADHD is considered to be the most common child psychiatric diagnosis in the United States (Bussing, 1998). According to Bloomingdale, Swanson, Barkley, and Satterfield (1991), approximately 1.2 to 2 million children are currently diagnosed with ADHD. Given that minorities constitute approximately one-third of the public school population, the purpose of this paper is to obtain a better understanding of the role culture plays in the diagnosis and treatment of ADHD (Reid, 1995).

International Differences in Diagnosing ADHD

It is important to keep in mind that ADHD is not diagnosed across countries in the same way, which can oftentimes explain the disparities when discussing the ADHD prevalence rates found in the research literature (Gingerich, Turnock, Litfin, & Rosen, 1998). For example, a study conducted by Mann et al. (1992) concluded that the perceptions of clinicians from several different countries with respect to hyperactivity varied significantly even when uniform rating criteria were applied. Furthermore, assessment instruments are not always used in the same way across countries, often using different cut-off scores for diagnosing hyperactivity (Holborow & Berry, 1986). According to Chandra (1993) cultural and societal tolerance for different behaviors vary, and how much a behavior deviates from the norm is based on culture-specific norms and not globally uniform criteria.

Reasons for the Inadequate Treatment of ADHD in Ethnic Minority Children

According to a study conducted by Bauermeister et al. (2003) in which he studied the treatment of ADHD among Puerto-Rican children, only one-fourth of the children who received the diagnosis received school-based services such as counseling and special education. Several explanations have been posited as to why ethnic minority children are currently receiving less adequate treatments than their white counterparts. One proposed explanation by Bussing (1998) is that ethnic minority parents had less knowledge of ADHD than their white counterparts even after controlling for socioeconomic status. Bussing (1998) believes that ethnic minority families often obtain medical advice from informal social networks and many times invalidate medical labels such as ADHD. The above may be due to these informal networks not recognizing the symptoms of the disorder or do not believe in the disorder. Therefore, parents who consult with these types of social networks are unlikely to view it as a disorder. A second explanation for the inadequate treatment of ethnic minority children is that different cultures have different thresholds for labeling behavior, different child-rearing practices, and also have different expectations for what constitutes appropriate behaviors (Weisz et al. 1991; Thiebaud, 1978).

Many times ethnic minority parents perceive ADHD symptoms as normal or as behaviors that will be outgrown, therefore not needing professional intervention (Bussing, 1998). A third explanation for this occurrence may lie in the trust parents place in their physicians. If parents do not trust their physician because they feel discriminated against, it is unlikely that parents will consider any pharmacological treatments that they prescribe (Bussing, 1998). Lastly, a fourth reason for the inadequate treatment of ADHD in ethnic minority children may lie in the fact their families many times have much more pressing concerns than their White counterparts, such as economic deprivation resulting from poorly paying jobs, low educational attainment, poor household structures, and a large number of dependents. Bussing (1998) believes that the main priority for many ethnic minority families is to prevent their children from incarceration, chemical dependency, and violence. Overall it appears that that the decision to treat ADHD is made within each family's cultural context and may explain the low number of children belonging to ethnic minority groups that receive adequate treatment.

Federal Statutes

Even though the decision to treat children with disabilities many times rests on the parents, who are often guided by the social network within their culture, the federal government enacted numerous laws to protect children with disabilities so that those children have a better opportunity to contribute to society. The Education for All Handicapped Children Act (PL 94-142) in 1974 and subsequent reauthorizations advanced education rights for all children with disabilities (Huefner, 2000). Parental input in their child's special education programming includes parental consent for initial evaluation (20 U.S.C. §1414 (a) (1) (C)), parental consent for placement (20 U.S.C. § 1414 (a) (5)), and parental involvement in the development of the child's Individualized Education Program (IEP) (34 C.F.R. § 300).

Evaluation procedures not only help determine if a child is eligible to receive special education services, but the Individuals with Disabilities Education Act of 1997 (IDEA) also stipulates that these procedures protect students from being misidentified based on race, culture, language difference, or the disability itself. Two ways of reducing the risk of misidentification are stipulated by the statute: (1) standardized tests must be administered by trained and knowledgeable personnel; and (2) standardized tests must be validated for the task for which they are used (20 U.S.C. § 1414(b) (3) (B)). In addition, tests must be used that are not racially or culturally discriminatory towards the child being evaluated (20 U.S.C. § 1414 (b) (3) (A) (ii)). Furthermore, students must be tested in their native language or mode of communication. Determination of a disability rather than differences due to language development should always be the focus of an assessment (34 C.F.R. § 300.532 (a) (2)).

To comply with federal mandates, the impact of culture and language on the assessments used to diagnose and treat ADHD has to be considered. By addressing these influences when evaluating children for potential ADHD, the over-representation of students in the special education system with cultural and linguistic diversity will be minimized.

APA Professional Standards in Working with Diverse Populations

The American Psychological Association (APA) has proposed several standards for psychologists that reflect and coincide with the aforementioned federal laws. The following suggestions were published by APA (1993) in an attempt to provide greater awareness to practicing professionals in regards to practical issues when working with culturally diverse clientele:

1. Psychologists educate their clients on the processes of psychological intervention, such as goals and expectations; the scope and, where appropriate, legal limits of confidentiality; and the psychologists' orientations.
2. Psychologists are cognizant of relevant research and practice issues as related to the population being served.
3. Psychologists recognize ethnicity and culture as significant parameters in understanding psychological processes.
4. Psychologists respect the roles of family members and community structures, hierarchies, values, and beliefs within the client's culture.

5. Psychologists respect clients' religious or spiritual beliefs and values, including attributions and taboos, since they affect worldview, psychosocial functioning, and expressions of distress.
6. Psychologists interact in the language requested by the client and, if this is not feasible, make an appropriate referral.
7. Psychologists consider the impact of adverse social, environmental, and political factors in assessing problems and designing interventions.
8. Psychologists attend to as well as work to eliminate biases, prejudices, and discriminatory practices.
9. Psychologists working with culturally diverse populations should document culturally and socio-politically relevant factors in the records (p.45).

The Influence of Culture in the Assessment of ADHD

Research suggests that four types of equivalents must be considered in order to establish the cross-cultural validity of an instrument. The first type of equivalents is called a linguistic equivalent and refers to having an accurate translation of behavioral descriptors. If this type of equivalence is not established, then behavioral raters may not have a common understanding of the characteristic being rated. In order to satisfy linguistic equivalence in an instrument, a back translation is recommended. To do this, a word is first translated into a second language and then retranslated back into the original language. If the retranslation does not yield the same word that the translation did, then the translation did not have an equivalent literal meaning (Marsella & Kameoka, 1989). A second characteristic of a cross-culturally validated instrument is that of conceptual equivalence, which refers to the similarities found in the meaning of the constructs used in assessment. Different cultures can interpret a construct in different ways. For example, the term “dependency” has a negative connotation in Western societies, yet it has a positive connotation in Japanese society (Marsella & Kameoka, 1989).

Moreover, a study conducted by Reid, Maa, and Vasa (1994) revealed that there are clear differences in the perceptions of ADHD across European, British, and American professionals. The third characteristic of a cross-culturally valid instrument is scale equivalence. In order to meet this criterion, there must be a common understanding of how the scale is used and that the raters share a common metric. In an attempt to quantify an opinion, behavior rating scales usually use Likert Scales and employ descriptors such as “Not at All,” “Just a Little,” “Pretty Much,” and “Very Much” (Marsella & Kameoka, 1989). Different cultures may interpret the frequency, intensity, and duration of the behavior corresponding to each of the aforementioned descriptors differently, resulting in interrater differences within a culture (Ross & Ross, 1982). The last characteristic constituting a culturally valid instrument is that of normative equivalence, which implies that the standards developed for one culture, are appropriate for another (Marsella & Kameoka, 1989). According to Reid (1995), in order for instruments to be comparable across cultures distribution should be similar, population means should be equal, and the symptomatology of a disorder should take place at the same base rate and intensity across cultures. Behavior rating scales can be very useful in diagnosing ADHD. However, practitioners should be aware that the results obtained when using an instrument cross-culturally may be inappropriate. Maag and Reid (1994) suggest other ways of assessing a child such as multi-

method functional approaches like looking at behavior baselines, designing interventions to treat the behavior, reviewing the outcomes, and revising interventions if necessary.

ADHD within Special Education

Children with ADHD may be protected by three federal statutes: Section 504 of the Rehabilitation Act of 1973 (Section 504), the Americans with Disabilities Act of 1990 (ADA), and the Individuals with Disabilities Education Act, Part B (IDEA). Both State Education Agencies (SEAs) and Local Education Agencies (LEAs) are required to provide a Free and Appropriate Public Education (FAPE) to all eligible children with disabilities. A student with ADHD could be eligible to receive special education services as defined by Part B of the Individuals with Disabilities Education Act under the Other Health Impairment (OHI) category if the ADHD is adversely affecting the child's educational performance. A diagnosis of ADHD by a physician is not enough to make a child eligible for services; educational need must also be present.

According to Gregg (2000), states have ten responsibilities in implementing eligibility requirements for ADHD under IDEA. The first responsibility is to make sure that public schools are able to locate, identify, and evaluate children who are disabled by ADHD. The second responsibility is to ensure that children with ADHD are provided with a FAPE. The third responsibility is that school personnel must develop and implement an individual educational program (IEP) to meet that child's educational need. Positive behavioral interventions also may be developed to assist the child's learning. The fourth responsibility is that schools must make an effort to involve parents in all decisions regarding the evaluation, eligibility, placement, and programming for their children. The fifth responsibility is for schools to educate children with ADHD with nondisabled children in the regular education setting to the maximum extent appropriate. The sixth responsibility is that schools must provide parents with the procedural safeguards outlined by IDEA. The seventh responsibility is for schools to ensure that the personnel providing special education and related services to children with ADHD have met state qualification standards. The ninth responsibility that schools must enforce is that children with ADHD will participate in state and district wide assessment programs with appropriate accommodations. Finally, the tenth responsibility is for schools to monitor suspension and expulsion rates for children with ADHD as compared to children without disabilities.

In the 23rd annual report to Congress, there were a total of 253,795 United States children and 35,487 Texas children receiving services under the category of OHI. In comparison, there were a total of 291,474 United States children and 36,539 Texas children receiving services under the category of OHI in the 24th annual report to Congress. As one can note, there has been a significant increase in children being served. Although these numbers do not specify how many ADHD children are receiving services under OHI, we can estimate that a portion of students served under OHI is directly linked to ADHD. (U.S. Department of Education, 2001; US. Department of Education, 2002).

Disproportionate Representation of Minority Students in Special Education

Public schools are constantly faced with the over-representation of students from minority populations in special education (Daniels, 1998). According to Dunn (1968), the over-representation of students with cultural and linguistic diversity (CLD) in special education first came to light more than thirty years ago. Early research on this phenomenon by Li and Moore (1998) focused on demonstrating its detrimental impact on society, such as poor academic outcome and social stigma. Unfortunately, bringing this information to public attention was not enough to eliminate its pernicious occurrence. Nevertheless, the early research that was conducted yielded sufficient information to establish the educational inequities in key litigation cases. These cases would later pave the way for educational reform and legislation mandates.

Historically, children that have come from culturally and linguistically diverse backgrounds have been assessed in either a biased or discriminatory way (Diana v. State Board of Education, 1970; Larry P. v. Riles, 1979; Sattler, 1988). These types of biased assessments have led to the disproportionate pattern of diagnosis and placement in special education of Hispanics, African-Americans, and Asians. In a study conducted by Langsdorf et. al. (1979), they noted that Mexican American and African American children from low SES backgrounds are less likely to have adopted the middle-class values and attitudes that are characteristic of childhood socialization patterns in American education and are consequently more at risk of being referred for special education. Bahr and Douglas (1991) state that for the past two decades there have been an overwhelming amount of minority students overrepresented in special education. Lipman (1997) indicates that the overrepresentation of culturally diverse students in special education is particularly visible in racially integrated schools. Furthermore, Shinn, Tindal, and Spira (1987) found that teachers referred a higher percentage of black than white students in grades 4-6 and concluded that race is a factor that affects teacher referral decisions. Moreover, a study by Zucker and Prieto (1977) found that when a student was described as being Hispanic, teachers found placement in special education as being more appropriate.

Currently, there is growing concern for the disproportionate number of minority students being served under special education. Studies have shown that ADHD appears to be more prevalent among children from low socioeconomic status (SES) as well as children who are ethnically diverse (LeFever & Dawson, 1999). Linguistic diversity also influences teacher referrals. Arcia, Frank, Sanchez-LaCay, and Fernandez (2000) state that the identification of children with ADHD becomes problematic in cases where English is the student's second language. These researchers further mention that characteristics of the behavior must be distinguished from inattentiveness or disruptiveness which may be the result of the child not understanding the language of instruction. Therefore, English Language Learners may be at particular risk for being inaccurately referred to special education for suspected ADHD. Even though professionals in the field are becoming more aware and sensitive to these issues, the instruments currently used to assess ADHD continue to lack the cross-cultural validity necessary to make accurate diagnoses (Reid, 1995). This has serious implication for children of minority status given that they may not receive the services and supports necessary to be successful in the classroom, and consequently in society.

Summary and Future Direction

As previously mentioned, it is evident that there are many limitations ranging from conceptual to psychometric to ethical in the assessment practices of ethnically and linguistically diverse populations. Again, given that ADHD is considered to be the most common child psychiatric diagnosis in the United States, and that minorities constitute one-third of the public school population, assessment instruments should, therefore, be up to par to meet the needs of these children. Both parents and educators should be informed about the behaviors associated with the different minority cultures so that they do not confuse these behaviors, like most uninformed observers do, as hyperactivity or inattentiveness, which could then lead to an ADHD referral or diagnosis. Presently, IDEA 97, Section 504, and ADA have set laws and procedures to protect students from being misidentified based on race, culture, language difference, or the disability itself.

Also, professional organizations such as APA have proposed several standards for psychologists that also reflect and coincide in the intent of the aforementioned federal laws.
Unfortunately, even though the law intends to protect children, the assessment instruments that we have to work with sometimes do not have the psychometric properties necessary to conduct valid cross-cultural assessments. Given the present limitations in the field, a multi-method functional approach should be implemented more frequently. It could be postulated that the disproportionate number of minority students being served under special education could have been subject to these injustices. As practitioners in the field of school psychology, we must take the lead in resolving some of these issues that have affected minority students for such a long period. This change must begin with becoming better educated about the minority cultures that practitioners encounter every day. Practitioners must also become aware of the present psychometric limitations of current ADHD instruments since they pertain predominantly to Western cultures and therefore do not represent children globally since their demographic characteristics are many times inadequately represented in the normative sample. Future research in this area should focus on developing new instruments that take the minority context into account such as race, language, traditions, and values. If the disproportionate number of ethnically diverse children in special education is to change for the better, these issues must be addressed and immediate action should be taken.

References

American Academy of Child and Adolescent Psychiatry (1997). Practice parameters for the assessment and treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*(10), 69-84.

American Psychiatric Association (APA) (2000). Diagnostic and statistical manual of mental disorders-Text Revision (4th ed.). Washington, DC: Author

American Psychological Association. (1993). Guidelines for providers of psychological services to ethnic, linguistic, and culturally diverse populations. *American Psychologist, 48*, 45-48.

Arcia, E., Frank, R., Sanchez-LaCay, A. & Fernandez, M.C. (2000). Teacher understanding of ADHD as reflected in attributions and classroom strategies. *Journal of Attention Disorders, 4*(2), 91-101.

Bahr, M. W., & Douglas F. (1991). Are teachers' perceptions of difficult-to-teach students racially biased? *School Psychology Review, 20*(4) 599-608.

Barkley, R.A. (1998). *Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment* (2nd ed.). New York: Guilford Press

Barkley, R.A. (1990). *Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment.* New York: Guilford Press

Bauermeister, J.J., Canino, G., Bravo, M., Ramır R., Jensen, P.S., Chavez, L. et al. (2003). Stimulant and psychosocial treatment of ADHD in Latino/Hispanic children. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*, 851–855.

Bloomingdale, L. Swanson, J.M., Barkley, R.A., & Satterfield, J. (1991). Response to the notice of inquiry by the professional group for ADD 'and related disorders. (Available from the Professional Group for Attention and Related Disorders, Student Development Center, University of California, 19262 Jamboree, Irvine, CA 92715).

Bussing, R., Perwein, A.R., & Belin, T. (1996, August). Predicting unmet service needs for ADHD among children in special education: Who is at risk? Poster session presented at the annual meeting of the American Psychiatric Association, New York, NY.

Bussing, R., Schoenberg, N.E., & Perwien, A.R. (1998). Knowledge and information about ADHD: Evidence of cultural differences among African American and White parents. *Social Science in Medicine, 46*(7), 919-928.

Cantwell, D.P. (1996). Attention Deficit Disorder: A Review of the Past 10 Years. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*(5), 978-987.

Chandra, P.S. (1993). Cross-cultural psychiatry and children with deviant behaviors. American Journal of Psychiatry, *150*(8), 1279-1280.

Diana v. California State Board of Education. No. C-70 37 RFP, District Court of Northern California (February, 1970).

Daniels, V.I. (1998). Minority students in gifted and special education programs: The case for educational equity. *Journal of Special Education, 32*, 41-43.

Dunn, L. M. (1968). Special education for the mildly retarded: Is much of it justifiable? *Exceptional Children, 35*, 5-22.

Gingerich, K.J., Turnock, P., Litfin, J.K., & Rosén, L.A. (1998). Diversity and attention deficit hyperactivity disorder. *Journal of Clinical Psychology, 54*, 415-426.

Gregg, S. (2000). ADHD and School Law. (ERIC Document Reproduction Service No. ED 449 597).

Holborow, P.L., & Berry, P.S. (1986). Hyperactivity and learning difficulties. *Journal of Learning Disabilities, 19*, 426-431.

Huefner, D.S. (2000). The risks and opportunities of the IEP requirements under IDEA '97. *Journal of Special Education, 33*, 195-204.

Jensen, P.S., Bhatara, V.S., Vitiello, B., Hoagwood, K., Feil, M., & Burke, L.B. (1999). Psychoactive medication prescribing practices for U.S. children: gaps between research and clinical practice. *Journal of the American Academy of Child & Adolescent Psychiatry 38*(5), 557-565.

Langsdorf, R., Anderson, R.P., Waechter, D., Madrigal, J., & Juarez, L. (1979). Ethnicity, social class, and perception of hyperactivity. *Psychology in the Schools, 16*, 293-298.

Larry P. v. Riles, C-71-2270 RFP, Opinion, October 10, 1979.
LeFever, G.B., Dawson, K.V., Morrow, A.L. (1999). The Extent of Drug Therapy for Attention Deficit-Hyperactivity Disorder among Children in Public Schools. American *Journal of Public Health, 89*(9), 1359-1364.
Li, A., & Moore, D. (1998). Acceptance of disability and its correlates. *Journal of Social Psychology, 138*(1), 13-26.
Lipman, P. (1997). Restructuring in context: A case study of teacher participation and the dynamics of ideology, race, and power. *American Educational Research Journal, 34* (1), 3-37.
Maag, J.W. & Reid, R. (1994). Attention-deficit hyperactivity disorder: A functional approach to assessment and treatment. *Behavior Disorders, 20,* 5-23.
Mann, C.A., Lubar, J.F., Zimmerman, A.W., Miller, C.A., & Muenchen, R.A. (1992). Quantitative analyses of EEG in boys with attention deficit hyperactivity disorder: A controlled study with clinical implications. *Pediatric Neurology, 8,* 30-36.
Manuzza, S., Klein, R. G., Bessler, A., Malloy, P. & LaPadula, M. (1993) Adult outcome of hyperactive boys educational achievement, occupational rank, and psychiatric status. *Archives of General Psychiatry, 50,* 565–576.
Manuzza, S., Klein, R.G., Bonagura, N., Malloy, P., Giampino, T.L., & Addalli, K.A. (1991). Hyperactive boys almost grown up: V. Replication of psychiatric status. *Archives of General Psychiatry, 48*, 77-83.
Marsella, A.J., & Kameoka, V.A. (1989). Ethnocultural issues in the assessment of psychopathology. In S. Wetzler (Ed.), *Measuring mental illness: Psychometric assessment for clinicians*. Washington, DC: American Psychiatric Press.
Reid, R (1995). Assessment of ADHD with culturally different groups: The use of behavioral rating scales. *School Psychology Review, 24*(4), 537-561.
Reid, R., Maag, J.W., & Vasa, S.F. (1994). Attention deficit-hyperactivity disorder as a disability category: A critique. *Exceptional Children, 60,* 198-214.
Ross, D.M., & Ross, S.A. (1982). *Hyperactivity: Current issues, research, and theory* (2nd ed.). New York: John Wiley.
Sattler, J.M., (1988) *Assessment of Children* (3rd ed.). San Diego: Jerome Sattler.
Shinn, M.R, Tindal, G., & Spira, D. (1987). Special Education as an index of teacher tolerance: Are teachers imperfect tests? *Exceptional Children, 54*, 32-40.
Thiebaud, E.F. (1978). The transition from Childhood to Adulthood in Old and New Sub-Saharan Africa. In E.J. Anthony and C. Chiland (Eds.), *The Child and His Family* (pp. 143-153). New York: John Wiley and Sons.
U.S. Department.of Education. (2001). *Twenty-third annual report to* Congress *on the implementation of the Individuals with Disabilities Act (*IDEA). Washington, DC: U.S. Department of Education.
U.S. Department.of Education. (2002). *Twenty-fourth annual report to* Congress *on the implementation of the Individuals with Disabilities Act (*IDEA). Washington, DC: U.S. Department of Education.
20 U.S.C. §1414 (a) (1) (C)
20 U.S.C. § 1414 (a) (5)
20 U.S.C. § 1414(b) (3) (B)
20 U.S.C. § 1414 (b) (3) (A) (ii)
34 C.F.R. § 300

34 C.F.R. § 300.532 (a) (2)
Weisz, J., Weiss, B. (1991) Studying the “referability” of child clinical problems. *Journal of Counseling and Clinical Psychology, 59*, 266–273.
Zucker, S.H., & Prieto, A.G. (1977). Ethnicity and teacher bias in educational decisions. *Instructional Psychology, 4*, 2-5.

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