The Development of a Quantitative Electroencephalographic Scanning Process for Attention Deficit-Hyperactivity Disorder: Reliability and Validity Studies

Vincent J. Monastra The Family Psychology Institute

Joel F. Lubar University of Tennessee, Knoxville

Michael Linden Mission Psychological Consultants

The development of a quantitative electroencephalographic (QEEG)-based procedure for use in the assessment of attention deficit-hyperactivity disorder (ADHD) was examined through a series of studies investigating test reliability and validation issues. This process, involving a spectral analysis of the electrophysiological power output from a single, midline, central location (the vertex), was conducted in 469 participants, 6 to 20 years of age, classified as ADHD, inattentive type; ADHD, combined type; or control. The results indicated that the QEEG scanning procedure was reliable ($r = .96$), was consistent with the Attention Deficit Disorders Evaluation Scale (S. B. McCarney, 1995) and the Test of Variables of Attention (L., M. Greenberg, 1994; chi-square, $p < .01$), and differentiated participants with ADHD from a nonclinical control group ($p < .001$). The sensitivity of the QEEG-derived attentional index was 90%; the specificity was 94%.