SCREENING FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN ADULT INPATIENTS WITH PSYCHIATRIC DISORDERS[1]

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Summary.—The purpose was to assess the effectiveness of the adult ADHD Module from the MINI International Neuropsychiatric Interview (MINI) and the Conners' Adult ADHD Rating Scales: Screening Version DSM–IV ADHD Symptoms Total Scale (CAARS–S:SV) in screening for attention-deficit/hyperactivity (ADHD) disorder in patients hospitalized for other psychiatric disorders. Assessment measures were administered to 55 (50%) female and 55 (50%) male adult (>18 yr. old) inpatients. Only six (5%) of the 110 inpatients had been diagnosed with comorbid ADHD according to medical charts. In contrast, 55 (50%) patients met criteria for ADHD according to the MINI, and 39 (36%) patients met criteria on the CAARS–S:SV. The higher rates of prevalence for the MINI and the CAARS–S:SV were attributable to symptom criteria for ADHD being similar to those shared with comorbid disorders.

The National Comorbidity Survey Replication study of 3,199 adults, 18 to 44 years old, living in the United States, found the prevalence of attention-deficit/hyperactivity disorder (ADHD) was 4.4% (Kessler, Adler, Barkley, Biederman, Conners, Demler, *et al.*, 2006). In their meta-analysis of studies investigating the prevalence of adult ADHD in the general population, Simon, Czobor, Bálint, Mészáros, and Bitter (2009) estimated that the prevalence was only 2.5%. However, in a study comparing 161 adult, nonpsychotic psychiatric outpatients and 149 normal adults, Montes, Garcia, and Ricardo-Garcell (2007) reported that the respective prevalences for ADHD were 16.8 and 5.4%. In contrast, Yates, Lund, Johnson, Mitchell, and McKee (2009) described the prevalence of ADHD in patients hospitalized for eating disorders as being 5.8%. For adults who were diagnosed with ADHD as children, 30 to 50% have symptoms that persist into adulthood (Biederman, Petty, Evans, Small, & Faraone, 2010).

There is debate about whether DSM–IV/DSM-IV–TR symptoms represent reliable and valid criteria for establishing psychiatric diagnoses (Jacobs & Cohen, 2004). For example, DSM-IV–TR symptom criteria for ADHD, such as being unable to concentrate or forgetful, might sometimes be described by anyone (Murphy & Adler, 2004), and such symptoms might, in turn, be associated with ADHD being overdiagnosed. Howev-

er, Sciutto and Eisenberg (2007) reported that ADHD was not being over-diagnosed in research studies about the prevalence of psychiatric disorders in youth, and Faraone and Biederman (2009) reviewed a number of studies about ADHD in adults (>18 yr. old) and concluded the disorder can be reliably and validly diagnosed according to DSM–IV/DSM-IV–TR criteria. O'Donnell, McCann, and Pluth (2001) found that self-reported symptoms of ADHD based on DSM–IV criteria differentiated adults who were diagnosed with and without ADHD. A variety of reliable and valid, rapidly administered diagnostic and self-report instruments, such as the adult ADHD module from the MINI International Neuropsychiatric Interview, Plus, Version 5.00 (MINI; Sheehan, Lecrubier, Sheehan, Amorin, Janavs, Weiller, *et al.*, 1998) and the Conners' Adult ADHD Rating Scales–Self-report: Screening Version (CAARS–S:SV; Conners, Erhardt, & Sparrow, 1999) are available to screen for adult ADHD (Adler, Faraone, Spencer, Michelson, Reimherr, Glatt, *et al.*, 2008; Adler, Shaw, Stein, Mick, Newcorn, Rostain, *et al.*, 2009). For example, in using the CAARS–S:SV, Steer, Ranieri, Kumar, and Beck (2003) were able to discriminate 37 (6%) outpatients with ADHD from 538 (94%) who were not diagnosed with ADHD. However, Murphy and Adler (2004) have stressed that more research is needed to establish the utility of ADHD clinical rating and self-report scales with adults, especially with patients with psychiatric disorders (Adler, *et al.*, 2009).

Screening for symptoms of ADHD in adult psychiatric patients is especially difficult because the symptoms of ADHD are similar to those that are present in other psychiatric disorders, such as major depression, bipolar disorder, anxiety, and impulsive disorders (Adler, *et al.*, 2009; Faraone & Biederman, 2009; Klassen, Katzman, & Chokka, 2010). A possible symptom of ADHD might thus be attributable to another disorder, instead of ADHD *per se.* However, the diagnosis of a DSM–IV/DSM-IV–TR attention-deficit/hyperactivity disorder requires that the symptoms cannot be better accounted for by another mental disorder, have persisted for at least six months, and have caused impairment in two or more settings, such as at home or work (American Psychiatric Association, 2000).

The purpose of the present study was to assess how effective the adult ADHD module from the MINI and the CAARS–S:SV Total Scale would be in screening for attention-deficit/hyperactivity disorder in patients hospitalized for other psychiatric disorders. An inpatient sample was chosen because it was unlikely that psychiatric inpatients would be hospitalized for ADHD. The patients would thus be diagnosed with a principal psychiatric disorder other than ADHD. The study also aimed to assess whether disorders with symptom criteria similar to those for ADHD, such as anxiety and bipolar disorders, would be significantly correlated with a MINI diagnosis of ADHD and the CAARS–S:SV Total Scale *T* scores.

Method

Sample

The sample was composed of 110 adult (>18 yr. old) inpatients who were consecutively admitted to the psychiatric inpatient unit of a general hospital, located in Cherry Hill, New Jersey, from October 2009 through January 2010, and balanced with respect to sex. Cherry Hill is a suburban, middle- to upper-middle-class community. The inpatient unit is a voluntary acute, short-term facility from which the majority of patients are discharged within 2 wk. of admission for outpatient treatment or transferred to longer-term facilities. There were 55 (50%) women and 55 (50%) men representing 71 (64%) Euro-Americans, 17 (16%) African Americans, 9 (8%) Hispanic Americans, and 13 (12%) patients from other ethnic backgrounds. The mean age was 36.6 yr. ($SD = 11.1$).

Although the patients were diagnosed after admission to the unit by board-certified psychiatrists who were actively involved in teaching residents and medical students how to derive DSM-IV–TR diagnoses, no interjudge agreement was measured with respect to the diagnoses that were recorded by the attending psychiatrists in the patients' medical charts. Only 18 (16%) of the 110 patients were diagnosed with a single Axis I disorder. There were 45 (41%) patients who were diagnosed with two disorders, and 47 (43%) patients who were diagnosed with three disorders. The mean total number of Axis I disorders was 2.26 ($SD = 0.73$). The patients were classified into the following broad diagnostic categories for descriptive and analytic purposes based on whether any one of the following disorders was represented across the three possible Axis I diagnoses: there were 47 (43%) patients with unipolar depressive disorders, 23 (21%) with bipolar disorders, 34 (31%) with anxiety disorders, 29 (26%) with alcohol abuse disorders, 53 (48%) with substance abuse disorders, and 22 (20%) with psychotic disorders.

Only six (5%) of the 110 inpatients were diagnosed with ADHD according to their medical charts, and ADHD was always reported as the third comorbid disorder, i.e., the disorder that a psychiatrist judged to require the least clinical attention. Five of these six patients reported they had been diagnosed with ADHD as children, and two of these six patients were currently taking amphetamine (Adderall) or methylphenidate hydrochloride (Ritalin) to control their ADHD symptoms as adults.

No attempt was made to test for the effect of different types of medications in the subsequent analyses. All of the inpatients were taking psychotropic medications, and the types of medications were nested within the different types of disorders and combinations of comorbid disorders. For example, a patient with a principal major depressive disorder and a

comorbid anxiety disorder might have been prescribed both antidepressant and anxiolytic medications.

Measures

MINI International Neuropsychiatric Interview.—The adult ADHD module from the MINI was used to assess whether the inpatients met current DSM–IV criteria for ADHD. The MINI is a brief, structured diagnostic interview schedule that addresses a variety of different disorders. Depending on the number of comorbid disorders, the MINI can be usually completed within 10 to 25 minutes. Its interrater and test-retest reliabilities are high with respect to diagnosing a variety of different disorders (Sheehan, *et al.*, 1998), and its sensitivity and specificity rates have been found to be comparable to those afforded by the longer Structured Clinical Interview for DSM–IV Axis I Disorders (SCID–IV; First, Spitzer, Gibbon, & Williams, 1996). The MINI was also used by Montes, *et al.* (2007) to study the prevalence of adult ADHD in psychiatric outpatients. The Kuder-Richardson–20 (KR–20) for the 14 dichotomous (Yes or No) symptom criteria listed in the adult ADHD module for the present sample was .82; this value is considered by Cicchetti (1994) to be "good" for clinical assessment purposes. The adult ADHD module from the MINI Plus, Version 5, did not make distinctions among DSM-IV–TR Inattentive, Combined Inattentive, and Hyperactive/Impulsive types. Therefore, the ADHD module was only scored for whether an ADHD disorder was supported.

Conners' Adult ADHD Rating Scales: Screening Version (CAARS–S:SV).— The CAARS–S:SV is a 30-item self-report instrument used to screen for symptoms of attention deficit, hyperactivity, and impulsivity in adults and addresses the criteria listed in the DSM–IV for ADHD (Conners, *et al.*, 1999). The instructions for the CAARS–S:SV ask a respondent to use a 4-point rating scale to indicate how frequently each of the 30 symptoms has recently been a problem for the patient. The ratings are anchored by 0: Not at all, never and 3: Very much, very frequently. Because the present study was screening for ADHD according to DSM–IV/DSM-IV–TR criteria, it was decided to use only the 18-item CAARS–S:SV Total Scale because this scale addresses all of the DSM–IV symptom criteria for ADHD. The item ratings were summed, and the raw scores were converted into *T* scores according to the four sex (men, women) by age groups (19–29, 30–39, 40–49, and 50 and above) given in the *CAARS Technical Manual* (Conners, *et al.*, 1999). The coefficient α for the summed CAARS–S:SV Total Scale scores with the present sample was .94, a value considered by Cicchetti (1994) to be "excellent" for clinical assessment purposes.

Procedure

The patients were administered printed versions of the CAARS–S:SV

within 72 hr. of their admission to the inpatient unit and as soon as they were judged to have sufficiently stabilized on their psychotropic medications to be capable of reading and understanding the CAARS–S:SV questions. The CAARS–S:SV was first administered by a psychiatric resident (JF) who next read the MINI questions aloud to the patient. The resident was trained in the use of the MINI by the third author (RAS), a psychologist who has been training psychiatric residents to use structured diagnostic interview schedules with psychiatric patients for over 25 yr. The answer sheets for both assessments were given to clerical support staff for scoring. The resident also recorded the diagnoses from the patients' medical charts without any prior knowledge of the MINI or CAARS–S:SV results. The study was conducted with the approval of the University's Institutional Review Board, and the patients had provided written informed consent.

<div align="center">Results</div>

The chart diagnosis of ADHD was the "gold standard" with respect to estimating the effectiveness of the MINI and CAARS–S:SV as screening instruments. The current chart prevalence of 5% was considered to be a reasonable base rate for the eventual statistical analyses because Kessler, *et al.* (2006) reported the prevalence of ADHD in a national survey of adults was 4.4%. Steer, *et al.* (2003) had found the prevalence of ADHD in adult outpatients was 6%. However, the MINI indicated that 55 (50%) of the 110 inpatients met DSM–IV criteria for ADHD.

Table 1 shows the correlations among having a chart diagnosis of ADHD (0: No, 1: Yes), being diagnosed with ADHD according to the MINI (0: No, 1: Yes), and the CAARS–S:SV Total Scale *T* scores. The correlations between dichotomous variables are expressed as φ coefficients, whereas the correlations between the dichotomous and continuous variables are point-biserial correlations. The mean *T* score of the CAARS–S:SV Total Scale scores for the 110 inpatients was 61.81 ($SD = 18.12$). This mean *T* score is above average for normal adults according to the interpretative guidelines suggested by Conners, *et al*. (1999). The frequency distribution of the *T* scores for the inpatients was normally distributed (Kolmogorov-Smirnov $Z = 1.11$, ns).

As Table 1 indicates, a chart diagnosis of ADHD was positively correlated ($r = .21$, $95\%CI = .02$, .38) with being diagnosed with ADHD according to the CAARS–S:SV, and the diagnosis of ADHD according to the MINI was also positively correlated ($r = .58$, $99.9\%CI = .33$, .75) with the CAARS–S:SV Total Scale *T* scores. The area under the curve (AUC) for the CAARS–S:SV Total Scale *T* scores with the chart diagnosis of ADHD was .75 ($95\%CI = .60$, .91), indicting adequate discrimination. The AUC is

TABLE 1
CORRELATIONS OF A CHART ADHD DIAGNOSIS, A MINI ADHD DIAGNOSIS,
AND CAARS–S:SV DSM–IV ADHD SYMPTOMS TOTAL *T* SCORES WITH
SELECTED BACKGROUND CHARACTERISTICS AND DISORDERS (*N* = 110)

Characteristic	Chart	MINI	CAARS–S:SV
Chart			
MINI	.16		
CAARS–S:SV Total Scale	.21*	.58‡	
Sex[a]	.08	−.02	−.06
Caucasian[b]	−.07	−.10	−.15
Age, yr.	−.15	−.06	−.09
Total number of disorders[c]	−.07	.12	.16
Any depressive disorder[b]	−.21*	.02	−.14
Any bipolar disorder[b]	.17	.29†	.33‡
Any anxiety disorder[b]	.10	.00	.12
Any alcohol disorder[b]	.04	−.06	−.07
Any substance disorder[b]	−.07	.16	.18
Any psychotic disorder[b]	−.02	−.27†	−.16

Note.—ADHD = attention-deficit/hyperactivity disorder, Chart = medical chart diagnosis of ADHD, MINI = MINI International Neuropsychiatric Interview diagnosis of ADHD, CAARS–S:SV = Conners' Adult ADHD Rating Scales: Screening Version. [a]0: Male, 1: Female; [b]0: No, 1: Yes; [c]1–3. *p* < .05. †*p* < .01. ‡*p* < .001.

an overall index of the accuracy of discrimination provided by a scale (Somoza & Mossman, 1991).

Five of the six patients with ADHD according to their charts were correctly classified by the MINI with ADHD, and 54 of the 104 patients without ADHD, according to their charts, were also correctly identified as not having ADHD by the MINI. Consequently, the sensitivity rate for the MINI was 83% (95%*CI* = 36%, 100%), and the specificity rate was 52% (95%*CI* = 42%, 62%). The overall rate of correct classification was thus 54% (95%*CI* = 44%, 63%). The positive and negative predictive values for the MINI were, respectively, 9% (95%*CI* = 3%, 20%) and 98% (95%*CI* = 90%, 100%). The high negative predictive value indicates that the MINI ADHD module would thus be most effective for identifying inpatients without ADHD.

Because a CAARS–S:SV Total Scale *T* score > 70 was described by Conners, *et al.* (1999) as being "very much above average" for normal adults, a cutoff score of 71 and above was considered to be appropriately high to screen for ADHD in inpatients who should be describing overall levels of symptom distress that are much higher than those reported by normal adults. Thirty-seven (34%) of the 110 inpatients had *T* scores > 70. Five of the six patients who were diagnosed with ADHD according to their charts were again correctly classified by the CAARS–S:SV Total Scale *T* score > 70, and 72 of the 104 patients who were not diagnosed with ADHD, according

to their charts, were also correctly classified as not having ADHD. Consequently, the sensitivity rate for a CAARS–S:SV Total Scale T score > 70 was 83% (95% CI = 36%, 100%), and the specificity rate was 69% (95% CI = 59%, 78%). The overall rate of correct classification was 70% (95% CI = 61%, 78%). The respective positive and negative predictive values for this cutoff score were 14% (95% CI = 5%, 29%) and 99% (95% CI = 93%, 100%). A cutoff T score of 71 and above on the CAARS–S:SV Total Scale also appears be most effective for identifying inpatients without ADHD.

In addition to classification rates, we were also interested in ascertaining whether comorbid disorders with similar symptom criteria to those for ADHD, such as anxiety and bipolar disorders (Adler, *et al.*, 2009; Faraone & Biederman, 2009; Klassen, *et al.*, 2010), would be significantly correlated with the MINI diagnosis of ADHD and the CAARS–S:SV Total Scale T scores. The finding of positive correlations with comorbid disorders would support the higher rates of prevalence found with the MINI and CAARS–S:SV Total Scale cutoff T score of 71 and above being attributable to the sharing of similar symptoms. To assess whether the inpatients' background characteristics and specific comorbid disorders were associated with a chart diagnosis of ADHD (0: No, 1: Yes), being diagnosed with ADHD according to the MINI (0: No, 1:Yes), and the CAARS–S:SV Total Scale T scores, the correlations of these three variables with sex (0: Men, 1: Women), being Caucasian (0: No, 1: Yes), age (years), number of comorbid disorders (1 to 3), or a diagnosis of any unipolar depressive disorder, bipolar disorder, anxiety disorder, alcohol abuse disorder, substance abuse disorder, and psychotic disorder, were also calculated (the last six disorders were coded 0: No, 1: Yes).

As Table 1 shows, none of the correlations of the three ADHD diagnostic variables was significantly correlated with sex, age, and being Caucasian beyond the .05 level, two-tailed test. Therefore, none of these background characteristics had to be controlled for in subsequent analyses. A chart diagnosis of ADHD was negatively associated (r = −.21, 95% CI = −.38, −.02) with being diagnosed with a depressive disorder, whereas a MINI diagnosis of ADHD was positively correlated with being diagnosed with a bipolar disorder (r = .29, 99% CI = .05, .50) and negatively correlated with being diagnosed with a psychotic disorder (r = −.27, 99% CI = −.48, −.03). The CAARS–S:SV Total Scale T scores were only positively correlated with being diagnosed with a bipolar disorder (r = .33, 99.9% CI = .02, .58).

Discussion

The results indicated that the adult ADHD module from the MINI and the CAARS–S:SV Total Scale might be most effective in screening psychiatric inpatients for whether they do not meet DSM–IV/DSM-IV–TR criteria for ADHD. The MINI and CAARS–S:SV Total Scale cutoff T score

of 71 and above yielded the same sensitivity (83%) rate for being diagnosed with ADHD according to the inpatients' medical charts. Although the specificity rates for both instruments were low (<70%), the negative predictive values for these two respective instruments were, respectively, 98 and 99%.

The ADHD prevalence rates for the MINI (50%) and a CAARS–S:SV Total Scale *T* cutoff score of 71 and above (34%) were unreasonably high and, respectively, 10 and 7 times higher than the 5% rate for ADHD recorded in the inpatients' clinical charts. Of course, the aforementioned rates are unreasonably high if the true base rate of ADHD for the present sample was indeed 5%. As previously mentioned, the 5% rate was considered reasonable given that Kessler, *et al.* (2006) reported that the prevalence of ADHD in a national survey of adults was 4.4% and Steer, *et al.* (2003) reported that the prevalence of ADHD in their adult outpatient sample was 6%.

The significant correlations of the MINI and CAARS–S:SV Total Scale scores with a bipolar disorder confirm the problems with differentiating bipolar and ADHD symptoms (Klassen, *et al.*, 2010). However, the high prevalence (50%) of ADHD according to the MINI coupled with the mean CAARS–S:SV Total Scale *T* score being above average indicate that the present inpatients had problems with maintaining attention and being impulsive. Such findings have important clinical implications with respect to the treatment of psychiatric inpatients, regardless of whether they meet DSM–IV/DSM-IV–TR criteria for ADHD. Inpatients with high scores on these two measures may be unable to attend to the clinical recommendations that are described in their discharge plans and understand the importance of continuing to take medications and keep future scheduled appointments. Such plans should be reviewed with these patients and their family members before discharge. Case managers should also make follow-up contacts with these patients to assure that the patients are indeed following through with the discharge treatment plans.

Although the positive correlation ($r = .58$, $p < .001$) between the MINI diagnosis of ADHD and the CAARS–S:SV Total Scale *T* scores indicated that both instruments were assessing DSM–IV/DSM-IV–TR criteria for ADHD, both scales were only measuring approximately 34% of what the other scale was assessing. Of course, the finding that only 5% of the inpatients were diagnosed with ADHD may be an underestimate of the true prevalence of this disorder in recently admitted inpatients. The psychiatrists were primarily focusing on symptoms of disorders that were associated with the patients being admitted to the hospital and requiring immediate treatment, instead of symptoms indicative of ADHD that might be eventually treated in an outpatient setting.

Furthermore, the scoring for the MINI adult ADHD module does

not contain a question that explicitly asks a clinician to judge whether the ADHD symptoms might be better accounted for by another mental disorder. The psychiatrists making the diagnoses that were recorded in the patients' medical charts may have decided that the symptoms of ADHD might be caused by another disorder. The finding that a chart diagnosis of ADHD was negatively correlated with being diagnosed with a depressive disorder may suggest that the psychiatrists had indeed attributed symptoms that might be associated with ADHD to a depressive disorder. The inverse relationship of a MINI diagnosis of ADHD with the diagnosis of a comorbid psychotic disorder might indicate that the symptoms had been judged to be more pertinent to a diagnosis of ADHD than to underlying psychotic processes.

The present sample was predominately composed of Caucasians who were admitted to an acute psychiatric unit in a general hospital that was located in a suburban community. Obviously, future research about the use of the MINI and CAARS–S:SV to screen for adult ADHD symptoms in psychiatric patients should include different ethnic and socioeconomic samples of adults drawn from diverse clinical populations, such as outpatients and partial-hospitalization programs. The full MINI or SCID–IV should also be used to establish all of the psychiatric disorders and not just ADHD.

REFERENCES

ADLER, L. A., FARAONE, S. V., SPENCER, T. J., MICHELSON, D., REIMHERR, F. W., GLATT, S. J., MARCHANT, B. K., & BIEDERMAN, J. (2008) The reliability and validity of self- and investigator ratings of ADHD in adults. *Journal of Attention Disorders*, 11, 711-719.

ADLER, L. A., SHAW, D., STEIN, M. A., MICK, E., NEWCORN, J. H., ROSTAIN, A. L., & RAMSAY, J. R. (2009) Updates in attention-deficit/hyperactivity disorder: current concepts and future developments. *Journal of ADHD and Related Disorders*, 1, 63-83.

AMERICAN PSYCHIATRIC ASSOCIATION. (2000) *Diagnostic and statistical manual of mental disorders.* (4th ed., text rev.) Washington, DC: Author.

BIEDERMAN, J., PETTY, C. R., EVANS, M., SMALL, J., & FARAONE, S. V. (2010) How persistent is ADHD? A controlled 10-year follow-up study of boys with ADHD. *Psychiatry Research*, 177, 299-304.

CICCHETTI, D. V. (1994) Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, 6, 284-290.

CONNERS, C. K., ERHARDT, D., & SPARROW, E. P. (1999) *Conners' Adult ADHD Rating Scales (CAARS): technical manual*. North Tonawanda, NY: Multi-Health Systems.

FARAONE, S. V., & BIEDERMAN, J. (2009) Attention-deficit/hyperactivity disorder: current status and future directions. *Journal of ADHD and Related Disorders*, 1, 7-13.

FIRST, M. B., SPITZER, R. L., GIBBON, M., & WILLIAMS, J. B. W. (1996) *User's guide for Structured Clinical Interview for DSM–IV Axis I Disorders: SCID–I Clinician Version*. Washington, DC: American Psychiatric Press.

JACOBS, D. H., & COHEN, D. (2004)   Hidden in plain sight: DSM–IV's rejection of the categorical approach to diagnosis. *Review of Existential Psychology and Psychiatry*, 26, 81-96.

KESSLER, R. C., ADLER, L., BARKLEY, R., BIEDERMAN, J., CONNERS, C. K., DEMLER, O., FARAONE, S. V., GREENHILL, L. L., HOWES, M. J., SECNIK, K., SPENCER, T., USTUN, T. B., WALTERS, E. E., & ZASLAVSKY, A. M. (2006)   The prevalence and correlates of adult ADHD in the United States: results from the National Comorbidity Survey Replication. *American Journal of Psychiatry*, 163, 716-723.

KLASSEN, L. J., KATZMAN, M. A., & CHOKKA, P. (2010)   Adult ADHD and its comorbidities, with a focus on bipolar disorder. *Journal of Affective Disorders*, 124, 1-8.

MONTES, L. G. A., GARCIA, A. O. H., & RICARDO-GARCELL, J. (2007)   ADHD prevalence in adult outpatients with nonpsychotic psychiatric illnesses. *Journal of Attention Disorders*, 11, 150-156.

MURPHY, K. R., & ADLER, L. A. (2004)   Assessing attention-deficit/hyperactivity disorder in adults: focus on rating scales. *Journal of Clinical Psychiatry*, 65(Suppl. 3), 12-17.

O'DONNELL, J. P., McCANN, K. K., & PLUTH, S. (2001)   Assessing adult ADHD using a self-report symptom checklist. *Psychological Reports*, 88, 871-881.

SCIUTTO, M. J., & EISENBERG, M. (2007)   Evaluating the evidence for and against the overdiagnosis of ADHD. *Journal of Attention Disorders*, 11, 106-113.

SHEEHAN, D. V., LECRUBIER, Y., SHEEHAN, K., AMORIN, P., JANAVS, J., WEILLER, E., HERGUETA, T., BAKER, R., & DUNBAR, G. C. (1998)   The MINI International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM–IV and ICD–10. *Journal of Clinical Psychiatry*, 59(Suppl. 20), 22-33.

SIMON, V., CZOBOR, P., BÁLINT, S., MÉSZÁROS, A., & BITTER I. (2009)   Prevalence and correlates of adult attention-deficit hyperactivity disorder: meta-analysis. *British Journal of Psychiatry*, 194, 204-211.

SOMOZA, E., & MOSSMAN, D. (1991)   ROC curves and the binormal assumption. *Journal of Neuropsychiatry and Neuroscience*, 3, 436-439.

STEER, R. A., RANIERI, W. F., KUMAR, G., & BECK, A. T. (2003)   Beck Depression Inventory–II items associated with self-reported symptoms of ADHD in adult psychiatric outpatients. *Journal of Personality Assessment*, 80, 58-63.

YATES, W. R., LUND, B. C., JOHNSON, C., MITCHELL, J., & McKEE, P. (2009)   Attention-deficit hyperactivity symptoms and disorder in eating disorder inpatients. *International Journal of Eating Disorders*, 42, 375-378.