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Validity of the Adult ADHD Self-Report Scale (ASRS) as a screener for adult ADHD in treatment seeking substance use disorder patients

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ABSTRACT

Background: To detect attention deficit hyperactivity disorder (ADHD) in treatment seeking substance use disorders (SUD) patients, a valid screening instrument is needed.
Objectives: To test the performance of the Adult ADHD Self-Report Scale V 1.1(ASRS) for adult ADHD in an international sample of treatment seeking SUD patients for DSM-IV-TR; for the proposed DSM-5 criteria; in different subpopulations, at intake and 1–2 weeks after intake; using different scoring algorithms; and different externalizing disorders as external criterion (including adult ADHD, bipolar disorder, antisocial and borderline personality disorder).
Methods: In 1138 treatment seeking SUD subjects, ASRS performance was determined using diagnoses based on Conner's Adult ADHD Diagnostic Interview for DSM-IV (CAADID) as gold standard.
Results: The prevalence of adult ADHD was 13.0% (95% CI: 11.0–15.0%). The overall positive predictive value (PPV) of the ASRS was 0.26 (95% CI: 0.22–0.30), the negative predictive value (NPV) was 0.97 (95% CI: 0.96–0.98). The sensitivity (0.84, 95% CI: 0.76–0.88) and specificity (0.66, 95% CI: 0.63–0.69) measured at admission were similar to the sensitivity (0.88, 95% CI: 0.83–0.93) and specificity (0.67, 95% CI: 0.64–0.70) measured 2 weeks after admission. Sensitivity was similar, but specificity was significantly

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better in patients with alcohol compared to (illicit) drugs as the primary substance of abuse (0.76 vs. 0.56). ASRS was not a good screener for externalizing disorders other than ADHD.
Conclusions: The ASRS is a sensitive screener for identifying possible ADHD cases with very few missed cases among those screening negative in this population.

1. Introduction

1.1. Relevance

Substance use disorders (SUDs) account for a substantial proportion of the global public health burden (World Health Organisation, 2010) and are associated with adverse outcomes. Compared to those without SUD, individuals with SUD have poorer physical and psychological health, greater financial problems, increased violent behavior, higher rates of criminality and incarceration, and a greater risk of mortality (Darke et al., 2007). The course and treatment of SUD is complicated by the high comorbidity with other psychiatric disorders (Teesson and Proudfoot, 2003; Mills et al., 2010; Grant et al., 2005).

Attention deficit hyperactivity disorder (ADHD) is consistently over-represented in epidemiological and clinical samples of SUD populations. General population surveys indicate an average prevalence of 3–4% adult ADHD (Kessler et al., 2006; Fayyad et al., 2007; Faraone and Biederman, 2005) with a pooled estimated prevalence of 2.5% (Simon et al., 2009), whereas in clinical samples of treatment seeking adult SUD patients, the prevalence of adult ADHD is substantially higher, ranging from 10% to 46% (Van Emmerik-van Oortmerssen et al., 2012; Levin et al., 1998; Clure et al., 1999; King et al., 1999; Schubiner et al., 2007; Wilens, 2004; Yewers et al., 2005; Matsumoto et al., 2005). This wide range of prevalence rates is probably related to a combination of factors, including the use of different diagnostic criteria, the use of different instruments and assessors, and the study of different populations (Van Emmerik-van Oortmerssen et al., 2012). The diagnosis of adult ADHD is rather time consuming and even if the prevalence of ADHD is as high as 46%, screening can be cost-effective to identify those who are likely the have ADHD.

However, screening for adult ADHD is not routine practice in drug and alcohol treatment services (McAweeny et al., 2010). This is unfortunate, because SUD patients with a comorbid diagnosis of adult ADHD have poorer treatment outcome and higher risk of relapse than SUD patients without ADHD (McAweeny et al., 2010; Upadhyaya, 2007; Wilens and Upadhyaya, 2007). In addition, patients with co-occurring ADHD and SUD have higher rates of other psychiatric disorders (Wilens et al., 2005), which may further jeopardize successful outcomes. Identification and treatment of ADHD in treatment seeking SUD patients may improve overall treatment outcome and thus a valid screening instrument that enhances the identification of this patient population is a critical first step.

1.2. Choice for the ASRS and the CAADID

1.2.1. ASRS. Several instruments are available for the screening of adult ADHD. For this study the shortest available instrument was chosen, the 6-item version of the World Health Organization Adult ADHD Self-Report Scale V 1.1 (ASRS) symptom checklist. This version was developed to have optimal concordance with the clinical classification. In a population survey, the ASRS had moderate sensitivity of 68.7% and high specificity of 99.5% (Kessler et al., 2005). In addition, the ASRS has demonstrated high internal consistency (Adler et al., 2006) and good test-retest reliability (Matza et al., 2011).

However, the psychometric properties and utility of this instrument have not been adequately tested in treatment seeking SUD patients. Existing studies in substance abusers are small and often provide only some and not all of the reliability and validity indicators of the ASRS. Given the limited data so far (Daigre Blanco et al., 2009; Dakwar et al., 2012; Pérez Pedrero and Puerta García, 2007; Adler et al., 2009; Chiasson et al., 2012), there is a need for more validation data on the ASRS using a large and heterogeneous sample of SUD patients.

1.2.2. Gold standard: CAADID. In order to assess the validity of a screening instrument for ADHD, it needs to be compared to a "gold standard" for the diagnosis of ADHD. While the gold standard can be a diagnosis obtained by expert consensus (West et al., 2003), this is unwieldy, particularly for larger studies. The preferred method is to use a reliable and valid structured interview that can be applied across various types of treatment settings (Wittchen et al., 1991; Kessler et al., 2005). To date, there is only limited data establishing the psychometric characteristics of ADHD screening instruments using structured clinical interviews for assessing ADHD in substance-abusing adults. Two studies have used the Conners' ADHD Adult Diagnostic Interview for DSM-IV (CAADID; Epstein et al., 2001) as the gold standard to evaluate the utility of the ASRS (Daigre Blanco et al., 2009; Dakwar et al., 2012). However, as noted before, samples were small and not al validity indicators were established due to limitation in the design and thus rigorous evaluation of the ASRS, using the CAADID as the "gold-standard" is still needed.

1.3. Research questions

In the methods paper for their international prevalence study of adult ADHD in treatment seeking substance use disorder patients, Van de Glind et al. (in press) mentioned that both DSM-IV-TR and the proposed criteria for adult ADHD in DSM-5 should be studied. While the "strict DSM-IV-TR" criteria as the gold standard comparator needs to be studied, the psychometric properties of the ASRS should also be evaluated using the slightly looser DSM-5 criteria (DSM-5 website, August 2012). Moreover, the range of prevalence rates in treatment seeking SUD patients (Van Emmerik-van Oortmerssen et al., 2012) might be related to differences in gender, the primary drug of abuse and treatment setting. Hence these differences might also affect the psychometric features of the ASRS and therefore the validity of the ASRS should be established separately in these sub-populations.

Interestingly in another study in a population of US managed care subscribers, both sensitivity and specificity of the ASRS greatly improved (from 39.1 to 64.9 and from 88.3 to 94.0, respectively) by using an alternative scoring algorithm of the 6-item version of the ASRS (Kessler et al., 2007). This alternative scoring algorithm might also improve ASRS validity in the population of treatment seeking SUD patients.

It is well known that active substance abuse and withdrawal can mimic ADHD symptoms (Levin et al., 2009). It is therefore important to know to what extent the timing of the ASRS assessment in clinical practice influences its validity. We hypothesized that the ASRS would have better sensitivity and specificity when used in a more stable situation compared to when administered at initial