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Informativeness of Self-reports of ADHD symptoms in Monitoring Response to Stimulant Treatment in Clinically Referred Adults with ADHD

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Abstract

Objective: To investigate the informativeness of self-reports of ADHD symptoms in adults with ADHD in the clinical setting.

Methods: Subjects were clinically-referred adults ages 19–67 years of age of both sexes (N=54). All subjects were on stable doses of stimulant and were considered responders to treatment. ADHD symptoms were assessed using the ADHD Investigator Symptom Rating Scale (AISRS) and the ADHD Self-Report Scale (ASRS). Spearman's rank correlations were used to assess the correlations between clinician assessed ADHD and patients' self-reports.

Results: Spearman's rank correlation analysis found evidence of a strong, positive association between total scores on the AISRS and the ASRS (r_s=0.65, df=52, p<0.001).

Conclusions: Results have important implications for the management and monitoring of treatment response in the clinical setting through patients' self-report.

Keywords

ASRS; AISRS; self-report; ADHD; symptoms

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Introduction

ADHD is a neurobiological, prevalent and highly morbid disorder estimated to afflict at least 5% of adults in the United States (Kessler et al., 2006). While the validity of the diagnosis of adult ADHD has been recognized, questions remain as to whether adults with ADHD are good informants of their own symptoms.

This issue becomes increasingly relevant as medicine transitions to a population health management model in which in-person contact with patients will likely decrease. This creates the need for alternative means for clinicians to help monitor the well-being of their patients remotely in which patients' self-reports becomes an issue of high importance. Yet limited information is available on the informativeness of self-reports of adults treated for ADHD during ongoing treatment.

Adler et al. (2006) examined the correspondence between Adult ADHD Self-Report Scale versus standard clinician ratings using the ADHD Rating Scale (ADHD RS) in a sample of 60 newly referred subjects. They reported high internal consistency for both the patient and rater-administered scales (Cronbach's alpha 0.88 and 0.89, respectively) with a high intraclass correlation coefficient (ICC) between scales for total scores (0.84). Kooij et al. (2008) examined the correlation between self-reported and clinician assessed symptoms of ADHD in a Dutch sample of newly referred adults with ADHD, finding moderate correspondence between self and clinician assessed symptoms (Kooij et al., 2008). However, because these studies focused on new patients, the informativeness of self-reports during ongoing clinical care remains uncertain.

To our knowledge, only one study addressed the informativeness of patient's self-report in response to treatment. Adler et al. (2008) analyzed data from two double-blind, randomized clinical trials patients, reporting good agreement between investigator ratings and self-ratings of baseline, endpoint, and change scores of ADHD symptoms. However, because clinical trials have inclusion and exclusion criteria, the generalizability of these findings to clinical practice is unclear.

Whether self-reports of ADHD symptoms are informative is an area of high clinical significance. This knowledge allows the treating clinician to remain confident that the patient-reported data on their symptomatic picture are accurate. Such information is needed to help clinicians monitor the clinical course of ADHD patients undergoing pharmacological treatment for ADHD over the long term and assure that patient's clinical course remains stable.

The main aim of this study was to investigate the informativeness of self-reports of ADHD symptoms in adults with ADHD in the clinical setting. To this end we examined the association between clinician assessed symptoms of ADHD and patient self-reports in a sample of clinically referred adult subjects with ADHD receiving pharmacological treatments for ADHD. Based on the available literature, we hypothesized a good correspondence between self-report and clinician assessed symptoms of ADHD in a clinical sample.

Methods

Subjects

Subjects were adults of both sexes, ages 19 to 67 years, who had been referred to the Adult ADHD Program at the Massachusetts General Hospital for clinical care or participation in a clinical trial of a pharmacological treatment for ADHD. All subjects were on stable doses of long-acting stimulant medication for ADHD and were considered responders to treatment. Subjects receiving stimulants received only one type of stimulant (methylphenidate or amphetamine, never both). Subjects followed in the clinic had been on stimulants for at least a year. There were 4 such subjects who were also taking selective serotonin reuptake inhibitors (SSRIs) in addition to their stimulant treatment. Subjects participating in a clinical trial derived from a randomized double-blind study of methyl-folate added to open label treatment of a long acting formulation of methylphenidate (MPH). This study was approved by the Institutional Review Board (IRB) and all subjects provided written informed consent.

Assessments

All subjects met DSM-IV diagnostic criteria for ADHD with childhood onset and persistent symptoms based on clinical assessment by an expert clinician. All subjects were treated with long acting stimulant medication. ADHD symptoms were assessed by a psychiatrist using the ADHD Investigator Symptom Rating Scale (AISRS) (Spencer et al., 2010) and by the patient using the ADHD Self-Report Scale v1.1 Symptom Checklist (ASRS) (Adler et al., 2006; Kessler et al., 2005) using a secured internet based data capture system. The psychiatrists making the AISRS ratings were blinded to the ASRS scores. The AISRS is a clinician-rated measure of ADHD symptoms on a four-point scale from zero (none) to three (severe). The ASRS is a self-reported measure of ADHD symptoms on a five-point scale from zero (never) to four (very often). Socioeconomic status was established using categories delineated by Hollingshead (1975) based on occupation and education. The Clinical Global Impression-Improvement (CGI-I) scale, for ADHD, completed by the treating psychiatrist, was used to determine if subjects were responders to their stimulant medications. The CGI-I is a clinician-rated measure of global illness improvement on a scale of one (very much improved) to seven (among the most extremely ill patients) (Guy, 1976). Subjects were included in this study if they were considered responders to their stimulant treatment as defined by a CGI-I score of ≤2.

Statistical Analysis

Given that the data being analyzed are count data which do not meet the assumptions of the Pearson correlations, we performed Spearman’s rank correlations to examine the association between the AISRS and the ASRS. All analyses were two-tailed and performed at the 0.05 alpha level using Stata® (version 14).

Results

The sample consisted of 54 subjects. The average age of participants was 40.8 ± 12.2 years. Forty-four percent of subjects were male and 85% were Caucasian. The average socioeconomic status was 1.5 ± 0.7 on the Hollingshead scale (Table 1). Subjects derived

from the randomized clinical trial were on the study medications for 12 weeks, with the exception of one subject who only completed 6 weeks of the trial. Subjects seen in clinical care have been receiving stimulants for at least one year.

Using Spearman's rank correlation, we found evidence of a strong, positive association between total scores on the clinician-rated AISRS and the patient-rated ASRS (r_s=0.65, df=52, p<0.001) (Figure 1A). We found similar results when we examined this association in males (r_s=0.68, df=22, p<0.001), females (r_s=0.69, df=28, p<0.001), younger subjects (≤40 years of age as determined by the median split) (r_s=0.64, df=26, p<0.001), and older subjects (>40 years of age) (r_s=0.70, df=24, p<0.001) (Figures 1B – 1E).

Discussion

This study investigated the informativeness of self-reports of ADHD symptoms in monitoring response to stimulant treatment in a sample of clinically referred adults with ADHD receiving pharmacological treatment for ADHD. Findings revealed very robust correlations between clinician assessed symptoms of ADHD and patient self-reports of the same symptoms. These results extend to the clinical setting previous results documenting good correspondence between clinician assessed ADHD symptoms and patient self-reports in the context of evaluative efforts and clinical trial results. Furthermore, our results are particularly robust considering that agreement was equally strong in males and females and younger and older subjects. Taken together, these findings support the informativeness of ADHD subjects' self-report of their symptoms within and without the clinical setting.

While findings by Adler et al. (2006) and Kooij et al. (2008) documented good correspondence between self-reports of ADHD symptoms and clinician assessed symptoms in the initial evaluation of ADHD patients, their informativeness during ongoing treatment has not been assessed. This information is particularly important during the process of long term monitoring of patients stabilized on a medication regimen. This knowledge allows the treating clinician to remain confident that the patient-reported data on their symptomatic picture are accurate.

Our results on the informativeness of self-reported symptoms of ADHD in patients receiving pharmacological treatment for ADHD in the clinical setting are consistent with those of Adler et al. (2006) who reported similar results in the context of clinical trials. However, since our results also include findings from an unselected clinical sample, they generalize to the clinical setting.

Our results on the informativeness of self-reported symptoms of ADHD are also consistent with those of Kessler et al. (2007) who examined the validity of a 6-question Adult ADHD Self-Report Scale (ASRS) Screener in a sample of subscribers to a large health plan in the US. Results showed that the ASRS Screener had strong concordance with clinician diagnoses, with an area under the receiver operating characteristic curve (AUC) of 0.90. Similar results were reported by Adler et al. (2011) who examined the correspondence between the self-reported Time-Sensitive ADHD Symptom Scale (TASS) with clinician administered ADHD Rating Scale (ADHD-RS) in a sample of 80 adults with ADHD. The

Pearson correlation coefficient between the self-reported TASS and the clinician administered ADHD-RS was highly significant (r = 0.70, P = .0001). These findings are particularly noteworthy because the two scales were not identical.

The findings that self-reports of ADHD symptoms are informative has important implications. This knowledge will allow clinicians to remain confident that the patient-reported data on their symptomatic picture are accurate. Such information will help clinician monitor the clinical course of ADHD patients undergoing pharmacological treatment for ADHD over the long term and assure that patient's clinical course remains stable. Considering that self-report information can be captured remotely with data capture technology, this approach to patient monitoring based on patients' self-report is poised to minimize patient and clinician burden, improve adherence, and minimize cost.

The findings of this report need to be viewed considering its methodological limitations. Although the clinical sample was small, the results were very robust. We used Spearman correlations to analyze our data because we considered it to be the most appropriate test statistic for these types of data. Thus, we do not know if the results would have been similar if other statistical approaches would have been used. Although most of our subjects were receiving stimulant monotherapy, approximately two-thirds of the sample derived from a randomized clinical trial of methyl-folate added to open label treatment with MPH that showed almost identical results in those taking MPH with and without methyl-folate. Nevertheless, more work is needed to further investigate whether our results will generalize to ADHD patients receiving other medical or psychiatric medicines. Because the diagnosis of ADHD did not include consideration to subtypes, we do not know whether the reported results would vary by subtypes. Also, because most cases were non-comorbid, we do not know if these results would generalize to more comorbid ADHD cases. Because the sample was largely Caucasian and referred, our results may not generalize to other ethnic groups or community samples. Despite these considerations, our work adds to the available literature supporting the informativeness of self-reported assessments of ADHD symptoms in the clinical setting in general and in the monitoring of ongoing treatment with stimulants.

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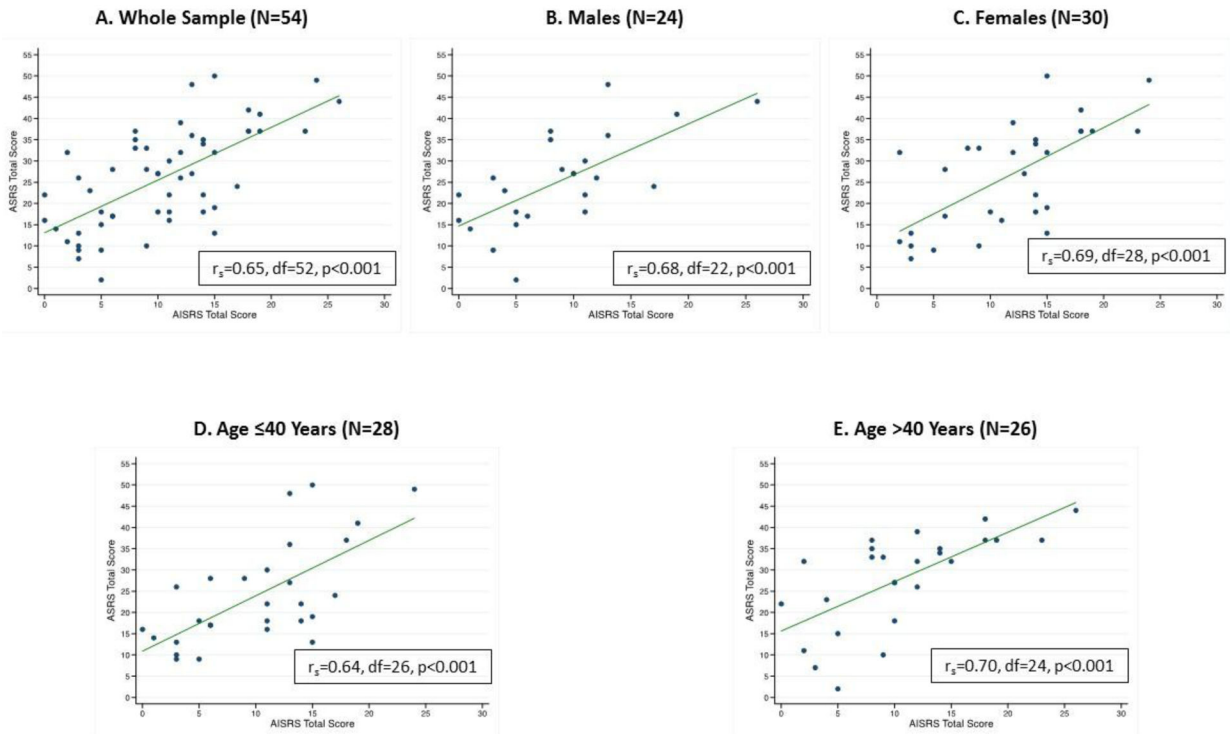

Figure 1.

We used Spearman's rank correlation to examine the association between the AISRSand ASRS among the following groups: (A) the whole sample, (B) male subjects, (C) female subjects, (D) subjects 40 years of age and younger, and (E) subjects olderthan 40 years of age. The age cutoff was determined usingthe median split.

Table 1.

Sociodemographic characteristics

Characteristic	Total Sample N=54
	Mean ± SD
Age (Years)	40.8 ± 12.2
Socioeconomic status†	1.5 ± 0.7
	N (%)
Male	24 (44)
Caucasian	46 (85)

†SES missing for 2 subjects. N=52