

Self-reported childhood attention-deficit/hyperactivity disorder symptoms are not specific to the disorder

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Abstract

Objective: The present study examined the specificity of self-reported childhood attention-deficit/hyperactivity disorder (ADHD) symptoms using the Wender Utah Rating Scale (WURS) in young adults with (1) a previous diagnosis of ADHD, (2) comorbid ADHD and psychological symptoms or diagnoses, (3) psychological diagnoses or symptoms without comorbid ADHD, and (4) controls.

Method: One thousand four hundred thirty-one non-treatment-seeking individuals (508 males), aged 18 to 25 years, were assigned to 1 of 4 groups (psychological controls, controls, ADHD, ADHD comorbid), based on responses to psychological, demographic, and health history questionnaires completed as part of a larger study. Responses to the WURS were analyzed at the individual item and subtest levels for their specificity to ADHD using area under the curve analyses.

Results: The standard WURS cutoff score of 46 was neither sensitive nor specific to ADHD, with a high rate of false positives in psychological controls. Factor analyses supported a 5-factor model (conduct problems, impulsivity problems, mood difficulties, inattention/anxiety symptoms, poor academic functioning) that accounted for 62% of the total variance; these factors were used to generate factor-based WURS subscales. Three subscales (impulsivity, poor academic functioning, and inattention/anxiety symptoms) showed potential for discriminating ADHD from controls among females. No subscales showed adequate sensitivity or specificity for discriminating ADHD from psychological controls among the males.

Conclusions: Results provide further evidence that retrospective self-report of childhood ADHD symptoms is not specific to ADHD and highlight concerns about the reliance on self-report of childhood ADHD symptoms for diagnostic purposes. Results suggest consideration of specific types of symptoms, and sex differences might increase diagnostic use of self-reported childhood symptoms.

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1. Introduction

In the assessment of adult attention-deficit/hyperactivity disorder (ADHD), clinicians must assess not only current symptoms but also for presence of the disorder in childhood because of the neurodevelopmental course of the disorder. In practice, the presence of and impairment associated with childhood ADHD symptoms are often assessed solely via retrospective self-report [1–2], despite considerable controversy surrounding the validity of this assessment [3]. Self-reported symptoms can be assessed via clinical interview or by using checklists and other self-report instruments. The Wender Utah Rating Scale (WURS) [4] is one of the most commonly used scales for adults to retrospectively report

ADHD symptoms and behaviors in childhood [3]. In the initial presentation of the scale, Ward et al [4] provided validity data for both a long form and a short form of the scale. The short-form score correlated well with mothers' ratings of childhood ADHD symptoms, and individuals who responded positively to methylphenidate in a placebo-controlled intervention study had significantly higher scores on the short form relative to nonresponders. Both the short form and the long form showed good 1-month test-retest reliability and adequate internal consistency in a nonclinical sample of undergraduate and graduate students aged 19 to 50 years [5]. A cutoff of 46 on the short form was reasonably sensitive to ADHD, as well as having minimal false positives in a psychological control group; this cutoff remains the one most frequently used in clinical work and research to date.

One major problem with adult report of childhood ADHD symptoms is that ADHD-like symptoms occur with high base rate in the general population. To illustrate, Murphy and

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Barkley [6] surveyed 720 adults aged 17 to 84 years applying for or renewing their driver's licenses. All were asked to complete current and childhood scales assessing *Diagnostic and Statistical Manual of Mental Disorders*-based ADHD symptoms. At least 20% or more of participants endorsed 10 of the 18 items as occurring "often or very often" during their childhood, including failure to give close attention to tasks, difficulty sustaining attention, difficulty organizing tasks, blurting out answers, difficulty waiting one's turn, avoiding work with mental effort, being easily distracted, being fidgety, feeling "on the go," and talking excessively. Although some of these adults may have had diagnoses of ADHD, given the base rates of the disorder (3%–7% in childhood), this level of childhood symptom report is high. Even more compelling data come from a 16-year follow-up of children who had either been diagnosed with ADHD using strict diagnostic criteria or who showed no evidence of ADHD in childhood [7]. The children were reinterviewed as adults by interviewers who were not aware of the childhood diagnostic status of the participants or of the study's purpose. Interviewers rated the childhood presence of clinically significant symptoms of inattention, hyperactivity, and impulsivity based on the interview, and these data were used to formulate a diagnostic impression of the presence/absence of childhood ADHD. Notably, 7 of 22 childhood ADHD symptoms were recorded as clinically significant in at least 20% of the *control* participants, including distractibility, inattention, acting before thinking, disorganization, being "on the go," fidgeting, and running about/climbing excessively. Retrospective childhood diagnosis of either probable or definite ADHD was made in 11% of the control group, who had been carefully screened for the *absence* of ADHD as children. With an estimated 5% base rate of ADHD in the general population, use of self-reported childhood symptom report to diagnose ADHD would have resulted in an unacceptably high 75% false-positive rate. With regard to the WURS, Retz Juninger et al [8] used receiver operating curve analyses to identify a lower cutoff (30) on a German version of the short-form WURS, but this scale was only 76% specific to ADHD (using a large nonclinical male sample as controls). Such results clearly demonstrate that self-reported childhood "ADHD" symptoms, whether assessed by interview or questionnaire, are not specific to the disorder, and reliance on self-reported childhood symptoms may result in misdiagnosis of the disorder in adults.

Childhood ADHD symptoms are also reported at high rates in samples of individuals presenting to clinics for evaluation or treatment, even for non-ADHD-related concerns. In McCann and Roy-Byrne's [9] sample of individuals seeking treatment for psychiatric concerns, almost half of the sample fell above the clinical cutoff on the short-form WURS. Roy-Byrne et al [10] also reported a 40% to 60% false-positive rate on the short-form WURS in a sample of individuals who presented for evaluation specifically for concerns about ADHD but who did not meet

diagnostic criteria for the disorder. In contrast, Rodriguez-Jimenez et al [11] found that a cutoff of 32 on a Spanish translation of the WURS was both sensitive and specific to ADHD in a sample of inpatients in treatment for substance dependence. Overall, however, these findings raise significant concerns about reliance on self-reported childhood symptoms for diagnosis and suggest a possible recall bias when individuals presenting for current evaluation are asked to retrospectively report childhood symptoms consistent with their current beliefs about their own diagnosis [9]. Given these findings, further examination of the WURS for specificity to ADHD is warranted.

Although some symptoms commonly associated with ADHD also occur at high base rate in other populations, including controls, other symptoms or symptom clusters may be relatively specific to ADHD and thus more useful in differential diagnosis. However, few studies have examined this possibility. Researchers have begun to explore whether there are subscales on the WURS that may be useful for differential diagnosis. Stein et al [12] factor analyzed the long form of the WURS in a sample of parents of children who were being seen in an ADHD clinic (the parents themselves were not seeking clinical services). In both males and females, factors were identified that were reflective of conduct difficulties, learning problems, attention problems, emotional problems, and social difficulties, although item loadings varied somewhat between sexes. Subscale scores based on the factors showed adequate internal consistency and 1-month test-retest reliability. In an analysis of the factor structure of the short form of the WURS, McCann et al [13] used data from 143 adults who had been referred to an adult ADHD specialty clinic and identified a 3-factor solution that accounted for 59.4% of the variance. The 3 factors were labeled dysthymia, oppositional behavior, and school problems. However, Retz Juninger et al [8] factor analyzed a German translation of the short form of the WURS and identified 7 factors in a sample of 63 adults diagnosed with ADHD. Therefore, there is little consistency among the findings, possibly related to differences in both the measure used (short form, long form, translated form) and the population analyzed (clinical, nonclinical), to guide future research.

Only one study has further analyzed the validity of subscales derived from WURS factor analysis. McCann et al [13] divided their sample into 2 groups (ADHD diagnosis, $n = 68$; no ADHD, $n = 73$), with both groups potentially having comorbid psychological diagnoses. The ADHD group was younger and completed less education than the no ADHD group. The ADHD group also obtained higher overall WURS scores and scored higher on the dysthymia and school problems subscales developed from their factor analytic findings described above. A discriminant function analysis controlling for age and education and including the 3 WURS subscales revealed that age and the school problems subscales were the only predictors of group placement. The resulting classification equation had a

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