

ADHD Rating Scales' Susceptibility to Faking in a College Student Sample

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Abstract

Clinicians must often rely on self-report data to make a diagnosis of attention-deficit/hyperactivity disorder (ADHD) in adults. Unfortunately, self-report data are subject to intentional distortion. This becomes a concern when assessing for the disorder in the college population due to perceptions that there are benefits to having a documented diagnosis, such as academic accommodations and prescriptions for medications. In the present study, college students without a history of ADHD diagnosis were significantly more likely than chance to be successful at faking the symptoms of ADHD on two rating scales. Specifically, 77% to 93% were successful at faking the appropriate number and pattern of ADHD symptoms after reading and studying ADHD diagnostic criteria for five minutes. Neither scale was more successful than the other at preventing false positives. Findings are compared to other research and implications for practice are discussed.

In the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association [APA], 2000), attention deficit-hyperactivity disorder (ADHD) is classified as one of the disorders usually first diagnosed in infancy, childhood, or adolescence. While the disorder, in varying forms, has been recognized in children for over a century (Barkley, 2003; Wender, Wolf, & Wasserstein, 2001), only in the last few decades has it been thought to continue into adulthood. This change in thinking was the result of several longitudinal studies that followed children who had been diagnosed with ADHD into adulthood (Young, 2000).

Identification and treatment of adults with ADHD is important, but the increased awareness of the disorder in adulthood poses difficulties for those who must

accurately diagnose it. As Young (2000) cautioned, even though there has been a growing recognition of the disorder in adults, similar progress has not been made in the area of adult ADHD assessment. Further, the number of students seeking accommodations for ADHD in college has increased in recent years (Glutting, Sheslow, & Adams, 2002). This is a factor because these students may be different from the general population in important ways, including ability level, academic success, and compensatory skill. Consequently, even less is known about the clinical presentation and assessment of ADHD in this population (Glutting, Monaghan, Adams, & Sheslow, 2002).

The diagnosis of ADHD in childhood and the resulting plan for treatment and accommodation is often based on an assessment battery which includes multiple

types of assessment measures and data from multiple sources. A wealth of data exists to aid in documenting symptoms of ADHD in children. However, this is not typically the case when documenting symptoms in adults (DeQuiros & Kinsbourne, 2001). Generally, an adult comes to the physician's or psychologist's office unaccompanied. School records may no longer be available, and the adult may not have a parent or spouse who can report observations. This leaves the clinician dependent upon the client's self-reports when documenting symptoms and impairment (DeQuiros & Kinsbourne). Consequently, self-report measures may carry a great deal of weight in making diagnostic decisions.

While self-report measures are easy to use and allow clinicians to objectively determine the severity of ADHD symptoms in comparison to the rater's peers, they are subject to intentional distortion on the part of the rater (McFarland & Ryan, 2000). This becomes a major concern when assessing for the disorder in the college population because students may perceive that there are benefits to having a documented diagnosis. For example, students with ADHD may receive accommodations such as extra time on tests, alternative exam formats, and a personal tutor (U.S. Department of Education, 2000). Given the emphasis on self-report in the diagnosis of adult ADHD as well as these potential benefits to obtaining a diagnosis, knowledge of the relative ease with answers on self-report scales for ADHD can be faked is important.

Researchers have investigated how the properties of self-report instruments in general may make them more or less susceptible to faking (e.g., McFarland & Ryan, 2000; McFarland, Ryan, & Ellis, 2002). Thus, the properties of the rating scale, such as the transparency of items and item arrangement, have been found to affect the scale's susceptibility to faking. However, such studies have generally focused on the use of personality measures in employee selection contexts. Less is known about how the properties of behavior rating scales used to diagnose clinical disorders, such as those used in identifying ADHD, affect the ease with which a person can falsify the results.

Quinn (2003) conducted the first published study that specifically looked at whether attempts to malingering could be detected with diagnostic tests for adult ADHD, including the ADHD Behavior Checklist (Murphy & Barkley, 1995), which consists of a list of DSM-IV criteria. Using three groups of undergraduate students, including students with ADHD, a control group, and a group of simulated malingerers who had been told the symptoms of ADHD, Quinn found that the ADHD

Behavior Checklist was unable to distinguish between students with ADHD and the malingerers. Both of these groups scored significantly higher than the control group, which was asked to complete the scale honestly. Quinn attempted to create an impairment index to identify those who were malingering by setting a cut score of greater than six inattention symptoms or greater than six hyperactivity symptoms, but correct identification rates were low. Specifically, 13 of the 23 simulated malingerers and 11 of the 16 students with a current diagnosis of ADHD were identified as malingering based on this index.

While Quinn (2003) provided some preliminary evidence that a behavior rating scale for ADHD could be successfully falsified, Jachimowicz and Geiselman (2004) went a step further by comparing the relative faking ability of four different behavior rating scales for ADHD. Participants were 80 undergraduates in an introductory psychology course who had never received a diagnosis of ADHD. The sample was split into four groups of 20 participants each, which studied the ADHD criteria for five minutes and then completed one of four different adult ADHD measures. The percentages of students who were successful at faking on each of the rating scales ranged from 65% to 95%. Using chi-square tests, the authors found that two of the measures were more successful at preventing false positives than others. However, the authors did not propose an explanation as to why they may have been more successful.

While Jachimowicz and Geiselman's (2004) work provided preliminary data regarding the faking ability of self-report measures for adult ADHD, several limitations of their study preclude an acceptance of their conclusions that adult ADHD rating scales are significantly easy to fake and that some self-report scales are better than others at preventing false DSM-based diagnoses in college students. First, their sample size was small and limited to students in one introductory psychology class. Second, none of the instruments used was specifically designed for college students. Finally, some of the instruments studied may not have corresponded well with the ADHD diagnostic criteria. For example, one scale was described as measuring impairments in the five clusters of executive functioning of the frontal lobe (i.e., activation, attention, effort, affect, and memory).

The present study examined the ability of college students to feign the DSM-IV symptom criteria on two self-report measures: The ADHD Behavior Checklist (Murphy & Barkley, 1995) and the College ADHD Response Evaluation (CARE; Glutting, Sheslow, et al.,

2002). Given the results obtained by Quinn (2003) for the ADHD Behavior Checklist, the results obtained by Jachimowicz and Geiselman (2004) for other measures of ADHD, and that the authors of the CARE have acknowledged that their scale is susceptible to faking, it was expected that the proportion of students who met diagnostic criteria in each group would be significantly greater than that expected by chance.

A second area of inquiry for the present study was whether the CARE is more effective at preventing attempts to feign ADHD than the ADHD Behavior Checklist. The factor-based items from the CARE are not included in the DSM-IV criteria, so they may not be as transparent as the DSM-IV items. Therefore, the proportion of students who are able to successfully obtain T scores greater than the recommended cut-off of 70 on the norm-referenced, factor-based scales without simply endorsing all of the items may be lower than the proportion of students who are able to successfully endorse the number of ADHD Behavior Checklist items needed for a DSM-IV diagnosis. However, previous research indicates that the majority of students, and in some cases almost all students, may be able to falsely meet diagnostic criteria on a variety of ADHD measures. Although the item transparency and arrangement of items on the ADHD Behavior Checklist may suggest that the measure is easier to falsify than the CARE, this may not be the case. Consequently, the present study also examined whether the CARE's factor based scales and/or DSM-IV scales are less susceptible to faking than the scales of the ADHD Behavior Checklist.

Method

Participants

The sample included data from 189 undergraduate students enrolled in one of two different classes at The Pennsylvania State University. Participants were 37 males (20%) and 152 females (80%) ranging in age from 18 to 35 years (mean age = 19.56 years, SD = 1.97). Self-reported class standing was as follows: freshman (35%), sophomore (46%), junior (14%), senior (4%), other (1%). Class majors were varied, but the most frequently occurring major was education, which was reported by approximately 58% of the sample. The ethnic makeup of the sample was self-reported as follows: Asian American/Pacific Islander (1%), Black/African American (4%), Hispanic/Latino (1%), Native American (1%), White/Caucasian (92%), Other (1%).

Materials

Upon entering a research session, participants received a packet that included scripted instructions, a copy of the DSM-IV-TR criteria for ADHD, and a demographic questionnaire. The demographic questionnaire consisted of items requesting information used to describe the demographics of the sample as well as questions assessing participants' prior knowledge of ADHD and their history of ADHD and learning problem symptoms and diagnoses. Participants also received either the CARE or the ADHD Behavior Checklist.

ADHD Behavior Checklist. The ADHD Behavior Checklist was chosen because it is simply a list of diagnostic criteria for ADHD. It was constructed by taking the 18 DSM-IV symptoms for ADHD and making slight changes in the wording to make them appropriate for adults. The items alternate inattention symptoms with hyperactivity/impulsivity symptoms. Respondents are to rate the 18 items on a scale of 0 to 3, corresponding to Rarely or Never, Sometimes, Often, and Very Often, respectively. If an item is rated as Often or Very Often, it is considered an endorsement of that symptom. The scales of the ADHD Behavior Checklist include Inattention, Hyper-Impulsive, and Total Score. As originally designed, the ADHD Behavior Checklist is administered twice. First, respondents rate the items based on their experiences with the symptoms between the ages of 6 and 12. Then they rate the items based on their experiences over the past six months. For the present study, students were only asked to rate the items once based on their experiences over the past six months so as to facilitate comparison with the sample taking the CARE.

College ADHD Response Evaluation. The CARE was chosen because it is a measure that was designed for and normed with college students. The CARE assessment system includes both a Parent Response Inventory (PRI) and a Self Response Inventory (SRI), which were co-normed. For the present study, only the self-report scale was used. The authors reported that the CARE's items came from reviews of the child and adult ADHD literature and their own clinical experience. Over 20 professionals were also interviewed and asked to contribute items. Respondents' scores can be interpreted in comparison to either the general population (for the DSM-IV scales) or to a sample of college students (for the DSM-IV scales and the scales based on factor analysis).

The CARE's 18 DSM-IV items were taken directly from the DSM-IV and are embedded in the overall measure, which consists of 59 items. Respondents rate

all items on a 3-point scale by indicating whether they Agree, Disagree, or are Undecided that each item applies to their day-to-day lives. Students are instructed to base their ratings on how typical each description is of their behavior over the last several months. For the DSM-IV scales, items marked Agree count toward a diagnosis of ADHD. For the factor scales, answers correspond to a point value between 0 and 2. Each factor-based scale's item total can then be transformed into a T score and a percentile. The DSM-IV scales include an Inattention Scale and a Hyperactivity Scale, and the factor-based scales include an Inattention Scale, a Hyperactivity Scale, and an Impulsivity Scale. Data to support the reliability and validity of the CARE's scores has been reported elsewhere (i.e., Glutting, Sheslow, et al., 2002; Glutting, Youngstrom, & Watkins, 2005).

Procedure

Undergraduate students were recruited from multiple sections of an introductory educational psychology class and a communication arts and sciences class at The Pennsylvania State University. The classes enrolled students from multiple majors and with multiple class standings. The students in these classes were informed of the opportunity to earn extra credit for participating in a study on the assessment of ADHD during their class time. Students who chose to participate attended one of nine data collection sessions held outside of class time.

As the students entered a data collection session, they were given one of two research packets in an alternating order. Each research session was conducted by two of five school psychology doctoral students who were trained on the data collection procedure by the first author. At the beginning of each session, participants were told that the purpose of the study was to examine the susceptibility to faking of different ADHD rating scales. Next, they were informed that participation would involve answering a few questions about themselves, looking at diagnostic criteria, and then completing a rating scale while pretending that they met the criteria. To begin, the session leaders read an overview of the procedure. Next, they asked the students to complete the demographic questionnaire. After the demographic questionnaires were completed, the session leaders read a slightly modified version of a scenario used by Quinn (2003). This scenario asked participants to imagine that they were having trouble in school. The remainder of the scenario described a college student who hears about ADHD on television and then speaks to a friend about the disorder and potential

benefits to having the disorder. The college student in the scenario decides to try to obtain a diagnosis of ADHD in order to obtain accommodations in school. Research has indicated that people who are able to successfully feign a mental disorder tend to endorse significantly fewer legitimate symptoms than those who are able to be identified as malingering (Edens, et al., 2001). Consequently, students were warned that one way a professional might detect faking is to look at over-endorsement of symptoms. Therefore, in order to be convincing, they should not simply give every question the highest rating.

Before the students were instructed to turn to the diagnostic criteria page in their research packets, they were offered an incentive for successfully faking ADHD. Specifically, they were told that surveys that were successfully faked would be entered into a drawing for two \$25.00 cash awards. A monetary award was chosen to increase the incentive for successful faking. Because there are strong incentives for someone who desires a false diagnosis of ADHD (e.g., academic accommodations, medication), it was determined that an incentive should be included. Previous studies of malingering and ADHD assessment (e.g., Jachimowicz & Geiselman, 2004; Quinn, 2003) have not used incentives for successful faking. The present study attempted to improve upon previous research by adding an incentive to increase generalizability. However, the small monetary incentives used are clearly not equivalent to the powerful incentives available outside of the research context. Rogers (1997) identified this type of problem as inherent in malingering research. He indicated that "data from research participants may have limited generalizability simply because these individuals trivialized their involvement as a necessary chore (e.g., extra credit for routine participation)" (p. 400). Rogers suggested that one way to manage this issue may be to increase the relevance of the project for the participants by explaining the magnitude of the problem. Based on this recommendation, part of the scripted instructions in the present study included a statement of why the knowledge gained from the study would be relevant to college students.

After the directions were given, the session leaders asked students to turn to the page in their packets that listed the diagnostic criteria for ADHD. The research assistants read the criteria aloud to ensure that all students in the session were informed of the criteria, including those who may have chosen not to read them. Students were then given approximately five minutes to continue to study the criteria independently. Next, they were asked to separate the criteria page from the

packet and turn it in to the session leaders so that it was not available while they completed the survey. Students were reminded to independently complete the surveys as if they had experienced these symptoms of ADHD.

Data Analyses

Descriptive statistics for each group's data were calculated, including the mean scores and standard deviations for each scale. Each scale was then examined to determine whether or not the student met criteria for successful faking. For the ADHD Behavior Checklist, if a student rated six or more symptoms on the Inattention scale and or six or more symptoms on the Hyper-Impulsive scale as Often or Very Often, he or she was considered positive for successful faking. Similarly, if a participant who completed the CARE rated six or more DSM-IV Inattention items and or six or more DSM-IV Hyperactivity symptoms as Agree, he or she was considered positive for successful faking. When analyzing the CARE's factor scales, students who obtained a cut score of 70 or greater on one or more of the factor scales was considered positive for successful faking. The five participants who simply endorsed all DSM-IV symptom items as Agree, Often, or Very Often were not considered positive for successful faking. For students with missing data ($n = 15$), surveys were still scored according to the above criteria. It was determined that surveys with some missing data should still be included in the analyses due to the nature of the task. Students who did not complete all of the items may not have been sure how to answer them in order to be successful at faking. This should be reflected in the proportions of each sample that are not successful at faking the characteristics of ADHD.

Results

In order to obtain a sample of students without a history of ADHD diagnosis or treatment, and to learn more about the sample's knowledge of and experience with ADHD, data from the screening questions were reviewed. The majority of the 189 participants (78%) indicated that they had some knowledge of the symptoms of ADHD. Less than 1% had never heard of ADHD, 8% had heard of ADHD, but did not know specific information about the disorder, another 10% self-reported that they had a thorough understanding of the characteristics of ADHD, and 5% described their knowledge of ADHD as Other.

When the 189 participants were asked whether they had ever sought professional help for problems

with attention and/or hyperactivity, 13 participants (7%) answered that they had. Of these, 9 had a self-reported history of ADHD diagnosis, and 4 had sought professional help for symptoms but had not obtained a diagnosis. Finally, one additional participant indicated a diagnosis of ADHD, but no history of seeking treatment. Consequently, 10 participants (5%) indicated a past history of ADHD diagnosis. Of the 179 participants who had never had a formal diagnosis of ADHD, 37 (21%) reported that they have felt as if they may have had the disorder, but had never been formally diagnosed, and 31 of the 179 participants (17%) had previously been told by a friend, parent, teacher, or other acquaintance that they probably had the disorder. Taken together, 47 participants (26%) out of the 179 who had no formal diagnosis of ADHD had (a) sought help for ADHD, (b) had thought they might have the disorder, or (c) had been told by another person that they probably had ADHD. Of all 189 participants, 30 (16%) had an immediate family member who had been diagnosed with ADHD. The screening questions for learning disabilities indicated that 9 of the 189 participants (5%) had previously sought professional help for learning disabilities. Three participants (1.5%) had been formally diagnosed with a learning disability.

Removing the data from the 14 participants (4 males, 10 females) who had previously sought professional help for and/or who had received a diagnosis of ADHD resulted in a sample of 175. Among these students, 88 completed the CARE and 87 completed the ADHD Behavior Checklist. The mean number of inattention symptoms reported on the ADHD Behavior Checklist was 5.8 ($SD = 2.4$), and the mean number of hyperactive/impulsive symptoms was 5.1 ($SD = 2.6$). On the CARE, the mean number of diagnostic inattention symptoms was 5.7 ($SD = 2.1$), and the mean number of diagnostic hyperactive/impulsive symptoms was 5.7 ($SD = 2.2$). For the CARE factor-based scales, the mean scores obtained in the present study were, on average, about 30 points higher than the mean scores reported for the CARE standardization sample (Glutting, Sheslow, et al., 2002). Mean scores ranged from 73.5 ($SD = 17.8$) for the Hyperactivity scale to 88.7 ($SD = 11.6$) for the Inattention scale.

Success at Faking

Of the 88 participants without a history of ADHD who completed the CARE, 82 (93%) were determined to have met the pre-determined criteria for successful faking based on one or more of the four factor-based scores (i.e., Inattention, Hyperactivity, Impulsivity, Total). Of the same 88 participants, 61 (69%) were

determined to be successful at faking based on answers to the DSM-IV items. Of the 87 students who completed the ADHD Behavior Checklist, 67 (77%) were considered positive for successful faking after the rating scales were scored.

To test whether the proportion of students in each sample who met criteria for ADHD was significantly greater than chance, chi-square goodness-of-fit tests were conducted. Results indicated that the participants who had no self-reported history of seeking professional help for or of having a diagnosis of ADHD were significantly more likely to be successful at faking responses on an ADHD rating scale than would be expected by chance. This conclusion was observed for responses on the CARE factor-based scales, the CARE DSM-IV items, and the ADHD Behavior Checklist scales. Results of the chi-square goodness-of-fit tests are summarized in Table 1.

To test the association between a particular rating scale and the frequency of ADHD diagnosis, 2 (CARE, ADHD Behavior Checklist) x 2 (Positive, Negative for successful faking) chi-square tests for independent samples were conducted. The test was conducted twice, first using the CARE factor-based scales and then using the CARE DSM-IV symptom counts as the basis for determining whether participants were considered

positive or negative for successful faking. Results indicated that there was no significant difference in success rate for faking when comparing the responses on the ADHD Behavior Checklist and the responses on the CARE DSM-IV scales. However, a significant difference was found for responses on the CARE factor-based scales when compared to responses on the ADHD Behavior Checklist. That is, participants whose responses on the CARE factor-based scales served as the basis for determining success at faking were significantly more likely to be designated as successful than the participants whose scores on the ADHD Behavior Checklist were examined. Results of these two chi-square tests are summarized in Table 2.

The chi-square analyses were repeated for the 128 participants who reported that they (a) had never sought help for or acquired a diagnosis of an attention or learning disorder, (b) had never felt as if they had ADHD, and (c) had never been told by someone they knew that they probably had the disorder. Results remained similar to those obtained for the sample that only excluded participants with a history of seeking treatment for or a diagnosis of ADHD. No different conclusions were reached with the more restrictive screening sample.

Table 1

Results of χ^2 Goodness-of-Fit Tests for the CARE and the ADHD Behavior Checklist

| Scale | N Positive | N Negative | $\chi^2(1)$ | p |
|---|------------|------------|-------------|------|
| CARE Factor-Based (N = 88) | | | | |
| Expected | 44 | 44 | | |
| Observed | 82 | 6 | 65.64 | <.01 |
| CARE DSM-IV (N = 88) | | | | |
| Expected | 44 | 44 | | |
| Observed | 61 | 27 | 13.14 | <.01 |
| ADHD Behavior Checklist (N = 87) | | | | |
| Expected | 43.5 | 43.5 | | |
| Observed | 67 | 20 | 25.39 | <.01 |

Note. Expected values based upon the null hypothesis that the numbers of students obtaining a positive and negative designation will be equal to those expected by chance alone.

Table 2

Results of χ^2 Tests for Independent Samples Conducted to Examine the Relative Susceptibility of the CARE Factor-Based and CARE DSM-IV Symptom Counts Compared to Scales from the ADHD Behavior Checklist

| Scale | N Positive | N Negative | $\chi^2(1)$ | <i>p</i> | phi |
|-------------------------|------------|------------|-------------|----------|------|
| CARE Factor-Based | 82 | 6 | | | |
| ADHD Behavior Checklist | 67 | 20 | 9.04 | < .01 | 0.23 |
| CARE DSM-IV | 61 | 27 | | | |
| ADHD Behavior Checklist | 67 | 20 | 1.32 | .25 | 0.09 |

Discussion

Rating Scales' Susceptibility to Faking

The results of the preceding analyses indicate that both the ADHD Behavior Checklist and the CARE are susceptible to attempts by college students to feign the symptoms of ADHD. Thus, large proportions of students without histories of attention or hyperactivity problems were able to meet the pre-specified criteria for testing positive for ADHD on three different measures after reading and studying ADHD diagnostic criteria for five minutes. Approximately 77% of students who completed the ADHD Behavior Checklist and 93% of students who completed the CARE were successful at attempting to fake the appropriate number and pattern of ADHD symptoms to test positive. Despite having screened the sample for histories of seeking treatment for and/or having a diagnosis of ADHD, more participants were able to fake their answers than would have been expected by chance.

Furthermore, the degree of item transparency and the organization of items on the CARE did not make the measure less susceptible to attempts at faking ADHD symptoms. Chi-square tests of independence indicated that the CARE DSM items and the scales of the ADHD Behavior Checklist were similarly easy to fake. About 77% of participants who completed the ADHD Behavior Checklist were successful at faking, whereas 69% of participants who completed the CARE were successful at faking when their DSM-IV items were considered. However, additional chi-square analyses indicate that there was a significant difference in susceptibility to faking when the CARE factor-based

scales and the ADHD Behavior Checklist scales were compared. Based on percentages of positive diagnoses, it appears that the CARE factor-based scales are more susceptible to faking attempts than the scales of the ADHD Behavior Checklist.

Data from the standardization sample of the CARE (Glutting, Sheslow, et al., 2002), provide some insight into why a greater percentage of students may have been able to fake their answers on the CARE factor-based scales. In the standardization sample, a cut score of 6 or more symptoms of inattention and/or hyperactivity led to positive ADHD identification for 2.1% of the 1,080 students. However, a cut score of 70 or greater on one or more factor-based scales positively identified 18% of the standardization sample, indicating that even in a normative sample comprised of honest responders, a student is almost nine times more likely to obtain a positive designation for ADHD when the factor-based scores are interpreted. In addition to this consideration, the comparative ease with which a person could obtain high scores on the CARE factor scales should be noted as well. Whereas meeting DSM-IV criteria requires knowledge of the particular diagnostic symptoms and pattern of those symptoms, obtaining high factor scores simply requires one to be able to distinguish which symptoms appear to be measuring inattention and/or hyperactivity and provide high ratings on those items.

Comparison and Contribution to the Existing Literature

The results of the present study both support and expand upon the published literature. For example,

the percentages of participants who were successful at faking (ranging from 69% to 93%) were similar to those reported by Jachimowicz and Geiselman (2004), who found successful faking rates ranging from 65% to 95% on four different ADHD rating scales when using samples of 20 students. It expanded upon previously published studies by including a larger sample of students from varying majors and class standings than what has been used to study ADHD rating scales' susceptibility to faking in the past. Furthermore, it demonstrated that even a measure designed specifically for assessment of ADHD in college students is susceptible to faking in this population – both when scores on factor-based scales and DSM-IV diagnostic criteria are used as the basis for determining whether a participant is successful at faking. Making an additional contribution to the literature, the present study included results for samples based on two sets of screening criteria.

The high percentage of individuals who are able to falsely meet diagnostic criteria based on a rating scale is not unique to ADHD. Researchers have found similarly high or even higher rates of successful faking of psychiatric disorder symptoms on rating scales for other conditions. For example, Lees-Haley and Dunn (1994) reported that 96.9% of their samples of introductory psychology students were able to meet diagnostic criteria for major depression on a symptom checklist, even though they were not provided with any specific information about the disorder. Similarly, 96.9% of their sample was able to meet criteria for generalized anxiety disorder, 86% were able to meet criteria for posttraumatic stress disorder, and 63.3% were able to select at least 5 of 10 criteria for mild brain injury. The authors noted that for all of these disorders, self-report information is needed to make a diagnosis. However, symptom checklists can be of such a leading nature that even individuals who have common knowledge of psychiatric disorders can pick out the symptoms needed to obtain a diagnosis. Consequently, it appears that susceptibility to faking is a characteristic of many conditions that rely upon self-reported information to make a diagnosis, as opposed to solely being characteristic of ADHD.

Mediators of Success

It was expected that a high percentage of students would be able to falsely meet criteria for ADHD based on their responses to a rating scale. However, it is somewhat surprising that not all of the students were successful, given the seemingly easy nature of the task. One potential mediator could be motivation. If partici-

pants were not motivated by the monetary incentive or the appeal to help make disability guidelines more restrictive, they may have chosen not to study the ADHD criteria and/or to carefully consider their answers to the rating scale. However, other research suggests that some individual characteristics and personality differences may also affect the validity of self-reports. For example, a study of self-reported grade-point averages (GPA), found that students with lower grades and lower ability levels were more likely to misrepresent their grades, even though there was no obvious incentive for doing so (Kuncel, Credé, & Thomas, 2005). Kuncel et al. also reviewed research that suggested personality variables, such as a tendency to self-monitor in order to manage the impression others receive, may affect the validity of self-reported grades. Similarly, Book, Holden, Starzyk, Wasylkiw, and Edwards' (2006) research suggests personality differences could affect success at malingering. Specifically, they found that introductory psychology students who scored higher on a measure of psychopathy were less likely to be detected as faking well on a measure of psychological disorders than those who had lower psychopathy scores. However, this relationship was not present for faking poorly, which would be a situation similar to the one being studied in the present analysis. Overall, it is unclear which factors prevented some students from successfully faking diagnostic criteria of ADHD, but motivation and individual differences may have served as mediators.

Scale Characteristics

Descriptive statistics of each scale were calculated in order to compare the properties of the falsified scale responses to those of responses provided in other research. As noted by comparing the present study's results to those of Quinn (2003), the obtained mean scores on the ADHD Behavior Checklist fall in a range similar to those obtained from both her ADHD group and from the group that was asked to fake their responses, adding further support to Quinn's conclusion that ADHD rating scales cannot discriminate students who are deliberately faking their responses from those with a valid diagnosis of ADHD.

On average, the mean CARE T scores obtained in the present study were almost 30 points higher than the mean scores obtained from the CARE's standardization sample. Given the degree to which CARE scores were higher for the current sample, it was questioned whether or not an "impairment index" such as that tested by Quinn (2003) for the ADHD Behavior Checklist might have sufficient sensitivity and specificity to be of

use in the detection of malingering. To adequately test such an index, the inclusion of a sample with ADHD would be needed. However, it is unlikely that such an index would have the clinical utility necessary to discriminate between individuals with ADHD and those who are malingering. One reason is that some students who are true positives for ADHD would obtain very high T scores on the CARE. For example, 2.4% of the CARE's standardization sample obtained T scores greater than or equal to 85 (Glutting, Sheslow, et al., 2002). Consequently, high scores alone do not help detect false positives. Furthermore, when individuals have been coached on information about the disorder they are trying to feign as well as on characteristics of the scales that may help a clinician detect faking well or faking poorly (i.e., validity scales), their scores tend to become less susceptible to detection (Berry, Baer, Rinaldo, & Wetter, 2002; Lamb, Berry, Wetter, & Baer, 1994). Finally, because the base rate of malingering in various contexts is unknown, the positive and negative predictive power of a "sign" for detection of malingering on a rating scale is also unknown (Faust, Hart, & Guilmette, 1988).

Implications for Adult ADHD Criteria and Assessment

As part of the screening questions used in the present study, participants were asked whether they had ever felt as if they had ADHD and if they had ever been told that they probably had the disorder by a family member or friend. As reported previously, 26% of the participants who had never been formally diagnosed with ADHD had sought help for ADHD, had thought they might have the disorder, or had been told by another person that they probably had ADHD. This suggests that about a quarter of the sample may have been valid referrals for an ADHD evaluation. This is not entirely unexpected given the nature of ADHD symptoms. The symptoms are not qualitatively different from experiences most people have. Rather, it is the severity and frequency of symptoms that characterize the problem as a disorder. The nature of this distinction may not be clear to the general population. However, it may also cause some concern regarding the validity of the disorder, as defined, in adults.

Currently, information in the literature both supports the validity of ADHD as a disorder that can be experienced by adults and calls into question the criteria used to define the disorder. Several longitudinal studies and studies of parents of children with ADHD (e.g., Barkley, Fischer, Edelbrock, & Smallish, 1990; Barkley, Fischer, Smallish, & Fletcher, 2006; Biederman

et al., 1996; Biederman et al., 2006; Mannuzza et al., 1991; McGough et al., 2005; Weiss, Hechtman, Milroy, & Perlman, 1985) have demonstrated that ADHD symptoms can be impairing into adulthood and that the presence of the disorder is often comorbid with many other psychiatric conditions, such as depression, anxiety disorders, and externalizing behavior disorders. However, there is also consistent concern over using diagnostic criteria that were validated with a sample of children and adolescents to diagnose the condition in adulthood. Several researchers have called for a reduction in the number of criteria needed to be diagnosed with the disorder, most noting that four symptoms are sufficient to identify a subgroup that is substantially different from the norm (e.g., Kooij, et al., 2005; McGough & Barkley, 2004; Murphy & Barkley, 1996; Riccio, et al., 2005). Others have noted that a refinement of the criteria is needed because the current DSM-IV symptoms are insensitive to the characteristics of adult lifestyles (Faraone, Biederman, & Mick, 2005; McGough & Barkley; Riccio et al., 2005)

In conclusion, it appears that certain behavioral correlates support the impairing nature of adulthood ADHD. However, there is also consensus in the literature that the criteria for adult ADHD are in need of refinement. Taken together, this information adds further support for the need for in-depth assessment that goes beyond the use of a self-report scale and considers the impact symptoms have on a person's ability to work and learn.

Limitations and Future Research

The participants in this study differed from those who may try to malingering in several important ways. Most notably, they were only offered a small incentive, and were given only five minutes to study the diagnostic criteria for ADHD. Individuals who attempt to obtain a diagnosis on the basis of false self-reports are likely to have strong motivation for doing so, such as a perceived need to obtain accommodations or a desire to obtain medications. Additionally, such individuals would be free to spend as much time as they wanted researching the disorder in order to be able to give a convincing presentation. Although not including a sample more representative of persons who would feign ADHD symptoms represents a limitation, the results are likely an underestimate, rather than an overestimate, of the percentage of college students who, with sufficient time and motivation, could falsely obtain a diagnosis of ADHD based on self-reports on a rating scale.

A related limitation is that it is unclear how care-

fully the participants tried to feign the symptoms of ADHD as they were completing the rating scales. Anecdotally, it was noted that many of the participants finished their rating scales quickly and did not use all of the available 15 minutes to consider their answers. A motivated malingerer is most likely willing to spend more time carefully considering his or her answers. However, even without careful consideration, the majority of the participants were able to successfully fake criteria so, again, it is likely that this limitation led to an underestimate of the percentage of college students who would be able to obtain a false diagnosis of ADHD if motivated to do so.

An additional limitation is that the sample was less representative of a general college population than expected. Although the sample reflected the gender make-up of the classes from which students were recruited, it did not reflect the gender balance of the general college student population. A more equitable gender distribution may have allowed for additional information regarding whether males and females are similarly successful at faking, and whether males and females have different success rates at faking the various ADHD subtypes.

Using a warning to not endorse all items to avoid detection may also have affected the results. The decision to use a warning was based on malingering research (e.g., Edens et al., 2001; Rogers, 1997). The warning was meant to serve as a way of encouraging participants to use a strategy to be successful at the task that did not involve simply endorsing every item. However, if no warning were included, more of the participants may have endorsed every diagnostic symptom item, which may have increase the likelihood of being detected as malingering in a clinical situation.

Finally, the study is limited in that it only examined the susceptibility to faking of ADHD rating scales. Although the present findings, in conjunction with previously published results, provide strong support that rating scales alone are insufficient for making reliable and valid diagnoses of ADHD in college students, it does not provide information that may be used to support detailed guidelines for ADHD documentation. It remains unclear which assessment methods, in which combinations, lead to a valid group of college students whose ADHD symptoms are predictive of dysfunction without accommodation and treatment. Future research should examine the susceptibility to faking of different types of assessments in conjunction. For example, studies could examine whether students would be successful at faking, and indistinguishable

from true cases of ADHD, if a battery of assessment methods, possibly including self-reports, observer reports, objective measures of attention and discrimination, psycho-educational assessments, and a thorough diagnostic interview, were used. This type of research would provide additional information for those who write documentation guidelines for determination of disabilities in postsecondary institutions.

Conclusion

The participants who were successful at faking the diagnostic criteria for ADHD had a small incentive and very brief amounts of time to study criteria. The results suggest that a college student with very strong motivation to obtain accommodations and enough time to carefully study the symptoms of the disorder, using internet and library resources, would have little trouble at meeting the criteria for and obtaining a diagnosis of ADHD if the diagnosis were primarily based upon self-report data from rating scales. This finding provides sufficient data to conclude that diagnoses should not be based solely on rating scale data, and consequently, that documentation guidelines at postsecondary institutions should consistently require multiple sources and/or methods of symptom assessment. Some universities already have a requirement for thorough documentation; however, others simply require that a licensed professional provide a diagnosis and explain the type and degree of functional impairment that requires accommodation. Data from the present study indicate that these less restrictive documentation requirements are insufficient. However, what level of requirements would result in the greatest proportion of valid disability classifications remains a question for future research because it is unclear how adding diagnostic interviews, additional standardized measures, and/or informant reports may impact upon the ability of a student to falsely obtain a diagnosis of ADHD.

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