Usefulness of the Spanish version of the ADHD-IV Rating Scale in preschool children

Jonatan Molina, Mateu Servera, Mireia Orgilés

Introduction. ADHD is an early onset and high prevalent neurodevelopmental disorder. Rating scales are useful measures to assess ADHD symptoms, being the ADHD-RS-IV the most used. Although it exists a preschool version, the original version is very similar and it is more available than the preschool version in many countries.

Aim. To analyze whether the Spanish version of the original ADHD-RS-IV scale is useful in preschool samples.

Subjects and methods. 258 preschool children aged 3 to 5 years were evaluated by parents and teachers using the original ADHD-RS-IV and SDQ scales.

Results. ANOVA between subjects (age group and sex) and within subjects (source) provided results that were very similar to those of other studies using the Spanish preschool version. Internal consistency and convergent validity were also similar to those reported by studies using the U.S. preschool version. Finally, no significant differences were detected between the means reported by Spanish study and those of this study. In both cases, the means of Spanish parents and teachers were lower than those of Americans, as shown by McGoey et al, but with small effect sizes.

Conclusion. Although it is recommended to use the preschool version whenever possible, our results suggest that original version of the ADHD-RS-IV scale is perfectly useful for both researchers and clinicians with preschool samples and it could be used in countries without normative data in preschoolers but do in school-age children.

Key words. ADHD. ADHD-RS-IV. ADHD-RS-P. Assessment in preschoolers. Attention deficit/hyperactivity disorder. Preschool. Rating Scales.

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Introduction

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by persistent symptoms of inattention and/or hyperactivity and impulsivity that are associated with significant impairment [1]. The onset of symptoms often occurs during early childhood since approximately two-thirds of the children had shown ADHD symptoms before 4 years of age [2]. In addition, ADHD symptoms generally persist at later ages. A longitudinal study found that 75-85% of preschool children who met ADHD criteria would continue to meet criteria 3 years later, although the presentation of the disorder could be varied [3]. Therefore, due to the early onset of the disorder and its persistence over time, early identification of ADHD symptoms at preschool age (3-5 years old) and their treatment could help in reducing ADHD symptoms, modifying the trajectory of the disorder and possibly reducing the negative impairment in later stages [4].

ADHD diagnosis on preschool population can be challenging since high levels of activity and inattention are common among preschool children, even on these children without diagnosis [5]. It was considered that most preschoolers could show ADHD symptoms although they don't meet DSM criteria. In addition, ADHD symptoms in preschoolers would be often temporary and they would disappear after a few months [6]. However, some studies found that around 80% of preschoolers have one or no symptoms [7] so that ADHD symptoms are not as frequent as we thought in preschoolers. Additionally, longitudinal studies show that ADHD has frequently an early onset and children usually maintain these symptoms until school-age and adulthood [3].

Rates of ADHD prevalence in preschoolers are somewhat lower than those at school age, estimated to be approximately 4% in most studies [8]. Similar rates have been found in Spanish preschoolers [7,9-11]. Despite the great progress in the research about objective measures in the diagnosis of ADHD, such as the encephalography [12,13], rating scales are the most widely used tool to assess ADHD symptoms in both research and clinical settings even in preschoolers [14], and one of the best-

known scales is the ADHD Rating Scale-IV Preschool Version (ADHD-RS-IV-P) [15].

The ADHD-RS-IV-P is a modified version of the ADHD Rating Scale-IV [16]; it has the same items but includes some examples to facilitate preschool evaluation for parents and teachers. Specifically, the ADHD-RS-IV-P adds adapted examples to the original scale for nine of the 18 items: seven of them on inattention symptoms (items 1, 5, 7, 9, 11, 13 and 17) and two of them on hyperactivity/impulsivity symptoms (items 2 and 8). The scale has shown good psychometric indexes and has been adapted to different countries, such as Denmark and Spain [17,18]. However, its use with preschool samples has not been as widespread, as it competes with the use of the original scale. For example, in a recent study aimed at investigating the association between ADHD symptoms in preschool-aged children who were born very premature and cognitive outcomes, the ADHD RS-IV was used, not the preschool version [19]. Therefore, from our point of view, the availability of two very similar scales, in addition to the publication of an updated version of the scale based on the DSM-5 diagnostic criteria [20], could be confusing for clinicians and researchers who are deciding which version to use with preschool children.

In fact, a clinical practice guideline published by the American Academy of Pediatry pointed out that the behaviors included in the DSM-5 diagnostic criteria for ADHD are the same from preschool age to adolescence, and these criteria are minimally different from the DSM-IV criteria published in 1994 [21]. Therefore, they concluded the following: 'Hence, if clinicians do not have the ADHD Rating Scale-5 or the ADHD Rating Scale-IV Preschool Version, any other DSM-based scale can be used to provide a systematic method for collecting information from parents and teachers, even in the absence of normative data'. For this reason, as we mentioned before, quite a few studies with preschool samples have used the ADHD-RS-IV original scale [19,22-23]. However, there is little empirical data that compares the usefulness of this school-age version with that of the preschool-age version in preschool samples.

Objectives of study

Therefore, the aim of this study is to analyze whether the Spanish version of the original ADHD-RS-IV scale is useful in preschool samples. For this purpose, we compare the Spanish version of the original ADHD-RS-IV with the ADHD-RS-IV-P US version [15] and Spanish version [7]. We hope to find similar results to those of the normative study of the Spanish ADHD-RS-IV-P due to both scales have the same items, but ADHD-RS-IV-P include some examples adapted for preschoolers.

Subjects and methods

Participants

The objectives, protocol and conditions of participation in the study were approved by the IRB of Miguel Hernandez University. We randomly selected nine of the forty-five schools from the Vinalopo Mitja region (Alicante, Spain). A cover letter that explained the purpose of the study was given to the 709 families enrolled in these schools on 1st course (children between 3-4 years). 2nd course (between 4-5 years) or 3rd course (between 5-6 years), and 43% returned the signed informed consent agreeing to participate. Therefore, the final sample included 304 children (46% girls) assessed by their parents, 91 children of 1st course (48% girls), 102 of 2nd course (42% girls) and 111 of 3rd course (47% girls).

On the other hand, twenty-four teachers of six schools agreed to complete our scales: fifteen teachers from a group of each preschool grade in five schools and nine teachers from the three groups of each preschool grade in one school. The ratio of children rated by teachers was 10.75, since teachers only completed questionnaires for children whose parents had given informed consent. We have the data of 258 children (47% girls) assessed by teachers and, in all cases, by parents. 74 of these children were on 1st course (50% girls), 86 on 2nd course (44% girls) and 98 on 3rd course (46% girls). Complete results of the number of participants assessed by parents and teachers can be found in table S3 of the supplementary material (https://osf.io/vq2tg/).

The age means for the three preschool age groups were 3.75 (*SD* = 0.29), 4.72 (*SD* = 0.27), and 5.72 (*SD* = 0.29), respectively. We also collected some sociodemographic variables for families: 93% of families were composed of married or cohabiting parents. Approximately 5% were divorced parents, 2% were single-parent families and 0.3% were widows/widowers. The educational level of the child's primary caregiver was as follows: 11% attended primary studies, 13% attended secondary studies, 26% attended vocational training, and 50% attended university or higher education. Caregivers' employ-

ment status was as follows: 4% homemaker, 3% unemployed benefits, 3% unemployed with no benefits, 11% temporary worker, 79% permanent worker, and 0.7% pensioner. None of the subjects had a history of mental or neurological disorder.

Measures

ADHD-IV Rating Scale for parents and teachers [16]

The ADHD-RS-IV comprised 18 items: nine for the 'inattention scale' (IN) and nine for the 'hyperactivity/impulsivity scale' (HI). Each item corresponds to symptom criteria defined in the DSM-IV-TR and is rated on a 4-point scale, ranging from 0 (*not at all*) to 3 (*severe problem*). In this study, the original Spanish version provided by the authors in their publication has been used.

Strengths & Difficulties Questionnaires for parents and teachers [24]

The SDQ for 2- to 4-year-olds is based on 25 items rated on a 3-point scale, from 0 (not true) to 2 (certainly true) and is free for download at http://sdqinfo.org/. The items are grouped into five subscales: emotional problems, conduct problems, hyperactivity, peer problems and prosocial (behaviors).

Procedure

The management teams of the selected schools were contacted to explain the project. When they agreed to participate, an explicative cover letter and an assessment protocol were given to the parents. The protocol comprised informed consent, demographic data, and the ADHD Rating Scale-IV and the SDQ, among other elements. Teachers distributed questionnaires to parents, along with a letter informing them of the study and requesting parental involvement. Once parents' protocols were collected, teachers were invited to complete the teacher's protocols, which included the ADHD Rating Scale-IV AND the Strengths and Difficulties Questionnaire (SDQ). This study is part of a larger project for which other measures were completed by parents and teachers.

Statistical analysis

This work is a descriptive study aimed at comparing the psychometric indices of two scales that assess ADHD symptoms in preschool age. We have applied the following statistical analysis. First, although most of the ADHD measures collected were not adjusted to a normal distribution, and Levene's test was also significant in most of them, repeated measures MANOVA and MANOVAs for parents and teachers were conducted separately. Since the sample and subsamples were acceptably large, we considered that the multivariate contrasts could be reasonably robust [25].

Therefore, first, a repeated measures MANOVA with a main within-subject factor (source) and two between-subject factors (age group and sex) was conducted. The dependent variables were the IN, HI and TOT scales from the ADHD-RS-IV for teachers and parents. Next, to analyze differences for each source on the three subscales according to sex and age group, a between-subjects two-factor MANOVA (sex × age group) was performed. We explored the post hoc comparisons both parametrically and nonparametrically, and the results were practically similar. However, given the lack of adjustment to the normal distribution and the inequality of error variances of the dependent variables, the nonparametric method seemed more appropriate.

In each of the analyses carried out, we tried to apply the more appropriate effect size [26-28]: partial omega squared (ω^2_p) for the multivariate *F* procedures; *r* effect size for the Mann-Whitney and Wilcoxon signed-rank tests; and epsilon squared (ε^2) for the Kruskal-Wallis tests. Additionally, the internal consistency of each subscale for each evaluator was assessed using Cronbach's alpha.

Finally, a comparison among the results of McGoey et al and Marín-Méndez et al using the ADHD-RS-IV-P and our study using the original ADHD-RS-IV was carried out using *t*-tests and Cohen's *d* effect sizes.

Results

Descriptive data for source, sex and age group

Tables I-III show the means and *SDs* of inattention, hyperactivity/impulsivity and the total score on the ADHD Rating Scale-IV, respectively, for parents and teachers in our sample.

Within-subjects analysis

A repeated measures MANOVA of the main factor (Source) and its interaction with sex and age group on the three ADHD measures (IN, HI, and TOT) was performed. Multivariate contrasts of within-subjects effects showed significant differences

Table I. Descriptive data on the Inattention Subscale of the ADHD-RS-IV.

	Teachers						Parents					
	Boys			Girls			Boys			Girls		
Age group	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
1st	37	6.89	6.02	37	3.54	5.33	47	5.09	4.02	44	4.56	4.73
2nd	48	4.17	6	38	1.89	2.83	59	5.36	4.2	43	4.17	3.05
3rd	53	5.09	6.91	45	2	4.3	58	6.08	4.79	53	3.72	3.81
Tot	138	5.25	0.42	120	2.44	4.3	164	5.54	4.36	140	4.12	3.91

M: mean; SD: standard deviation.

for Source, with a large effect size ($F_{(2, 251)} = 24.02$ $p = 0$, $\omega^2_p = 0.15$), and for source x sex, with a small effect size ($F_{(2, 251)} = 5.79$, $p = 0.003$, $\omega^2_p = 0.04$), but not for source x age group ($F_{(4, 502)} = 1.93$ $p = .104$) or for source x age group x sex ($F_{(4, 502)} = 1.25$ $p = 0.287$).

Differences within the source factor indicated that parents always scored higher than teachers. The effect size was small for IN ($F_{(1, 252)} = 4.74$, $p = 0.03$, $r = 0.24$) and moderate for HI ($F_{(1, 252)} = 42.79$, $p = 0$, $r = 0.44$) and TOT ($F_{(1, 252)} = 23.95$, $p = 0$, $r = 0.39$).

The source x sex interaction indicated that parents scored higher than teachers for both boys and girls. The differences were significant for IN ($F_{(1, 252)} = 5.88$, $p = 0.016$), HI ($F_{(1, 252)} = 11.45$, $p = 0.001$), and TOT ($F_{(1, 252)} = 10.51$, $p = 0.001$). However, the pairwise comparison using Wilcoxon signed-rank tests and the effect sizes were very different for boys and girls. For boys, there were no differences in the three scales, with small effect sizes: IN ($Z = -1.09$, $p = 0.279$, $r = 0.09$), HI ($Z = -3.30$, $p = 0.001$, $r = 0.28$), and TOT ($Z = -2.56$, $p = .011$, $r = 0.22$). Instead, for girls, the differences were always significant, and the effect sizes were moderate for IN ($Z = -4.74$, $p = 0$, $r = 0.43$) and large for HI ($Z = -6.75$, $p = 0$, $r = 0.62$) and TOT ($Z = -6.60$, $p = 0$, $r = 0.60$).

At this point, it should also be noted that the convergence between the scores of parents and teachers was low: 0.36 and 0.22, respectively, for the IN and HI measures.

Between-subjects analysis

Independent MANOVA between-subject designs for teachers and parents were applied. For teachers, the age group x sex interaction was not significant. The age group factor was significant for IN ($F_{(2, 252)} = 3.37$, $p = 0.036$), HI ($F_{(2, 252)} = 4.39$, $p = 0.013$), and TOT ($F_{(2, 252)} = 4.69$, $p = 0.01$). The Mann-Whitney tests of the age group factor found significant differences in the three ADHD measures when the 1st vs the 2nd and 3rd groups were compared, but not between the 2nd and 3rd groups. The effect sizes of differences were always small, indicating higher scores for older children: 1st vs 2nd, IN ($Z = -2.86$, $p = 0.004$, $r = 0.23$), HI ($Z = -2.15$, $p = 0.032$, $r = 0.17$), and TOT ($Z = -2.82$, $p = 0.005$, $r = 0.22$); 1st vs 3rd, IN ($Z = -2.90$, $p = 0.004$, $r = 0.23$), HI ($Z = -3.51$, $p = 0$, $r = 0.27$), and TOT ($Z = -3.77$, $p = 0$, $r = 0.29$). Finally, the sex factor for teachers was more clearly significant, but the effect sizes remained small (not exceeding 0.30): IN ($Z = -4.25$, $p = 0$, $r = 0.26$), HI ($Z = -3.44$, $p = 0$, $r = 0.21$), and TOT ($Z = -4.36$, $p = 0$, $r = 0.27$). In all cases, boys scored higher than girls.

For parents, only the sex factor for IN was significant ($F_{(1, 298)} = 7.95$, $p = 0.005$). Again, boys scored higher than girls, but the effect size was small ($Z = -3.02$, $p = 0.003$, $r = 0.17$).

Internal consistency reliability and concurrent validity

Internal consistency by Cronbach's alpha was very high for all variables and both sources: IN, 0.86 and 0.85, HI .80 and 0.93, and COM 0.9 and 0.95, respectively, for parents and teachers in each case.

Concurrent validity between the ADHD and SDQ scores was analyzed. Although practically all correlations between the ADHD and SDQ measures are

Table II. Descriptive data on the Hyperactivity/Impulsivity Subscale of the ADHD-RS-IV.

	Teachers						Parents					
	Boys			Girls			Boys			Girls		
Age group	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
1st	37	6.43	6.09	37	3.59	5.43	47	6.43	4.38	44	7.27	5.16
2nd	48	3.92	5.17	38	2.17	2.91	59	6.1	4.71	43	5.7	3.68
3rd	53	4.19	6.33	45	1.56	3.08	58	6.76	4.01	53	5.49	4.36
Tot	138	4.7	5.94	120	2.38	3.98	164	6.43	4.36	140	6.11	4.48

M: mean; SD: standard deviation.

Table III. Descriptive data on the Total Subscale of the ADHD-RS-IV.

	Teachers						Parents					
	Boys			Girls			Boys			Girls		
Age group	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
1st	37	13.32	10.4	37	7.14	9.53	47	11.51	7.8	44	11.84	9.3
2nd	48	8.08	9.41	38	4.05	4.83	59	11.46	7.09	43	9.86	6
3rd	53	9.28	12.66	45	3.56	6.84	58	12.84	8.01	53	9.21	7.32
Tot	138	9.94	11.14	120	4.82	7.38	164	11.96	7.89	140	10.24	7.68

M: mean; SD: standard deviation.

significant, the average of the correlations of each SDQ scale with all the ADHD scales is quite different. The highest average is clearly on the HY scale –0.76 (0.65-0.81)–. All the correlations between HY scale and ADHD scales are higher than 0.65 such as IN (0.78 for teachers and 0.72 for parents), HI (0.67 for teachers and 0.65 for parents) and TOT (0.81 for teachers and 0.76 for parents). In addition, all the correlations between ADHD and SDQ measures are significant. Except for the CP scale [0.48 (0.41-0.54)], the average of the correlations of the remaining scales does not exceed 0.33. Thus, the ADHD-RS-IV scales and the HY subscale on the SDQ show moderately high concurrent validity. The complete results of the correlations on ADHD and SDQ measures for teachers and parents can be found in table S4 of the supplementary material (https://osf.io/vq2tg/).

Differences between the ADHD-RS-IV and the ADHD-RS-IV-P

McGoey et al offered normative data for the ADHD Rating Scale-IV Preschool Version (ADHD-RS-IV-P) for a U.S. sample of 500 boys and 477 girls assessed by parents and teachers, and Marín-Méndez et al normalized the Spanish version of this scale using a sample of 1,426 preschool children and offered results by raters, sex and age groups. Since the *M* and *SD* of the different standardized groups are presented in both studies, it is possible to compare these results with ours.

Comparing our data with those of McGoey et al, twelve differences can be examined (two raters, by two sexes, by three measures). There is a tendency for their means to be higher than ours, but the differences are small, ranging from 0.45 to 3.96 (*M* =

1.88 and *SD* = 0.97). Even though the differences appear to be statistically significant in eleven of the comparisons, they do not seem especially relevant since the effect sizes are small. Cohen's *d* ranges from 0.10 to 0.36 (*M* = 0.27, *SD* = 0.07). The complete results can be found in table S1 of the supplementary material (https://osf.io/vq2tg/).

In the case of Marín-Méndez et al, it is possible to compare the results not only by raters and sex but also by age group. Although they establish four age groups, the first three coincide with ours, and the sample size of the fourth age group (children over 6 years old) is very small (*n* = 43). Therefore, thirty-six comparisons have been carried out (two raters, by two sexes, by three groups, by three measures), and there have only been significant differences in three of them. The effect of all the comparisons ranged from 0.01 to 0.43 with a mean of 0.17 (*SD* = 0.11), with 13 of them small and 23 insignificant. The complete results can be found in table S2 of the supplementary material (https://osf.io/vq2tg/).

Discussion

The aim of this study has been to compare the original version of the ADHD-RS-IV against the specific version for preschoolers to analyze if they are similar tests from a psychometric point of view. Although the use of the preschool version may be recommended, the fact that many clinicians and research studies have used the original version in preschool samples makes this verification necessary.

First, we analyze the differences between subjects (age group and sex factors) and intrasubjects (source factor) for the three subscales of the ADHD-RS-IV (IN, HI, and TOT). We did not find significant interaction effects between source, age group and sex, as seen in McGoey et al and Marín-Méndez et al. Parents tended to give higher ratings than teachers did in the three studies, and the interaction between source and sex was significant, as seen in Marín-Méndez et al, with one small difference: in our study, we only find differences in girls. McGoey et al did not report differences in this interaction. Therefore, we can conclude that differences between source, sex and age group factors on the ADHD-RS-IV are, in general, very similar to those found for the preschool version in Spanish and U.S. samples.

Moreover, similar to the preschool version, the ADHD-RS-IV demonstrates acceptable reliability and validity in preschoolers. Our data show good internal consistency for IN, HI and the total scale (between 0.80 and 0.95). Similar values have been reported by McGoey et al and Marín-Méndez et al. On the other hand, McGoey et al obtained good results using the Conners Rating Scale-Revised to analyze the convergent validity of the ADHD-IV-RS-P. We used the five clinical scales of the SDQ with a similar intention, and we found, as hypothesized, that our ADHD measures correlated more consistently and more highly with the SDQ hyperactivity scale.

Finally, we were able to compare the means obtained in our samples using the ADHD-RS-IV with parents and teachers with the means obtained by Marín-Méndez et al with a Spanish sample and McGoey et al on a U.S. sample using the preschool version. Of the 36 comparisons made with the Marín-Méndez et al sample, only 3 were significant, and all the effect sizes were small or insignificant.

McGoey et al provided normative data of the ADHD-RS-IV-P for a US sample, and Marín-Méndez et al for the Spanish version. In both cases, the means and standard deviations of parents and teachers' ratings are given by sex and age group, so that it has been possible to compare these results with ours. As in the Marín-Méndez et al sample, our means have been significantly lower than those of McGoey et al, although the effect sizes in no case exceed 0.36; that is, they are small.

To conclude, our results suggest that the ADHD-RS-IV is useful in preschoolers, since its psychometric properties are very similar to those of the preschool version. Studies in other countries such as Japan have also found that the ADHD-RS-IV has good psychometric properties in preschool children and high predictive validity with respect to ADHD diagnostic DSM-5 criteria [29]. Of course, we are in favor of using the preschool version when possible, but the data obtained in preschool children with the original version of the scale seem perfectly adequate for both clinicians and researchers.

Potential limitations of this study should be taken into consideration. First, the rate from parents who complete the scale was low, which could affect the results. Second, familiar factors such as mental health history or ADHD symptoms was not analysed in this paper, although ratings about general health on parents were obtained. These factors have related to ADHD symptomatology on children so that this may introduce a bias in the ratings. Third, using both scales on the same sample could have been the best option to compare the equivalence of the ADHD-RS-IV and the ADHD-RS-IV-P. However, we compare our sample with other stud-

ies with community samples that are similar regard to raters and age.

On the other hand, it is highly recommended to make normative studies of psychological measures to find possible cultural differences in the raw scores. It is important to note that the consistent tendency of parents and teachers in the U.S. sample to provide higher ratings than those in the Japanese and the Spanish samples but these differences are of relative importance, since the effect sizes of the differences are small. In other words, if a child has a high-percentile score on the Spanish versions of the original or preschool ADHD-IV-RS, he or she would probably also have a high-percentile score on the U.S. version of the preschool scales. Therefore, these results also suggest that Spanish cut-off points could be useful for ADHD screening in countries without normative data on preschoolers. Meanwhile, it is possible to use the ADHD-RS-IV using the DSM criteria instead of normative data. Each item of the ADHD-RS-IV describe a ADHD symptom, so children with 6 or more items rated as 2 or 3 are considered like possible cases of ADHD [10].

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Utilidad de la versión española de la *ADHD Rating Scale-IV* en preescolares

Introducción. El trastorno por déficit de atención/hiperactividad (TDAH) es un trastorno del neurodesarrollo de inicio temprano y altamente prevalente. Las escalas de evaluación son instrumentos útiles para evaluar los síntomas de TDAH y la *ADHD Rating Scale-IV* (ADHD-RS-IV) es la más usada. Aunque existe una versión para población preescolar, la versión original es muy similar y es más accesible que la versión preescolar en muchos países.

Objetivos. Analizar si la versión española de la escala ADHD-RS-IV es válida para la evaluación del TDAH en preescolares.

Sujetos y métodos. Padres y profesores evaluaron a 258 niños preescolares entre 3 y 5 años a través de las escalas ADHD-RS-IV original y *Strengths & Difficulties Questionnaire.*

Resultados. El ANOVA intrasujetos (edad y sexo) e intersujetos (fuente) aporta resultados muy similares a los obtenidos en otros estudios usando la versión preescolar en español. La consistencia interna y la validez convergente también son similares a las notificadas por estudios en Estados Unidos con la versión preescolar. Finalmente, no se encuentran diferencias significativas entre las medias del estudio español y las de nuestro estudio. Las medias de padres y profesores en este estudio y en el español son más bajas que en el estudio americano, pero los tamaños del efecto son pequeños.

Conclusión. Aunque se recomienda el uso de la versión preescolar si es posible, nuestros resultados sugieren que la versión original de la ADHD-RS-IV es perfectamente válida y útil tanto en el ámbito de la investigación como en el clínico, y podría usarse en los países sin datos normativos en preescolares.

Palabras clave. ADHD-RS-IV. ADHD-RS-IV-P. Escalas de evaluación. Preescolar. TDAH. Trastorno por déficit de atención/hiperactividad.