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Reliability and validity of the adapted Attention Deficit Scale (EDAH) in Chilean students

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Original article

ABSTRACT

Background

The needs of children's mental healthcare make it necessary to have epidemiological studies that serve as a basis to refine interventions and enhance diagnosis with reliable and appropriate tools.

Objective

The objective of this study was to analyze the psychometric properties of the scale for the assessment of Attention Deficit Hyperactivity Disorder (ADHD) in elementary and secondary schools in Chile.

Method

A sample of 508 students (144 with Attention Deficits, 110 with suspected autism, and 254 common) was assessed through a test completed by their teachers.

Results

The factorial structure revealed that three factors together explain 71.61% of the total variance of the scale, with an alpha coefficient of 0.948. This allows us to conclude that the scale presents acceptable psychometric characteristics and adequate internal consistency, and that its elements have suitable discriminatory power.

Discussion and conclusion

The present study of mental health in Chilean schoolchildren revealed that the adapted EDAH Scale possesses a high discriminatory capacity and adequate elements and reliability factors, as well as an optimal discriminatory power between factors. We analyze its implications and possible contribution to the early detection of clinical diagnosis in mental health.

Key words: Instrument validity, reliability, attention deficit disorders with hyperactivity.

RESUMEN

Antecedentes

Las necesidades de atención en salud mental infantil hacen necesario contar con estudios epidemiológicos que sirvan de base para perfeccionar las intervenciones y acrecentar el diagnóstico, con instrumentos fiables y adecuados al contexto.

Objetivo

El objetivo de este estudio fue analizar las propiedades psicométricas de la Escala para la Evaluación del Trastorno por Déficit Atencional (EDAH), en escolares de primaria y secundaria de Chile.

Método

Se evaluó una muestra de 508 alumnos (144 con Déficit Atencional, 110 con sospecha de padecerlo y 254 comunes) mediante un test completado por sus profesores.

Resultados

La estructura factorial de la EDAH reveló tres factores que en conjunto explican el 71,61% de la varianza total de la escala, con un coeficiente Alfa de 0,948. Esto permite concluir que la adaptación de la escala presenta características psicométricas aceptables, una adecuada consistencia interna y que sus elementos poseen un adecuado poder discriminatorio.

Discusión y conclusión

Se efectuó el estudio transversal de salud mental en escolares chilenos, el cual reveló que la escala EDAH adaptada posee alta capacidad de discriminación, adecuada fiabilidad de elementos y factores, además de presentar un óptimo poder discriminante entre factores. Se analizan las implicaciones y el posible aporte en la detección precoz del diagnóstico clínico en salud mental.

Palabras clave: Validez de instrumentos; confiabilidad; trastornos de la atención con hiperactividad.

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BACKGROUND

Attention Deficit Hyperactivity Disorder (ADHD) is currently one of the most widely diagnosed and treated childhood conditions in children's and young people's medicine. There are discrepancies around actual figures, due to the diversity of diagnostic criteria, or even because the instruments used vary in both the methodology used and the sources of information. Due to these discrepancies, the prevalence oscillates between 3% and 7%[1] or between 1% and 2%,[2] although at a global level, rates are situated between 8% and 12%.[3] Spanish figures do not stray far from international ones, as studies reveal the presence of the disorder at between 3% and 5%,[4] while in Chile, prevalence rates are at 6.2% in students.[5]

Although epidemiological studies on mental health in school-aged children have been insufficient, there is historical data showing a prevalence between six and 11 years of age in Santiago de Chile,[6] which reports that 7.2% obtained high scores for behavioral problems without differences in gender and which varied inversely at a socioeconomic level. Behavioral problems were present in 8.4% of children aged 10 to 11, compared with 6.5% of under-10s.[7]

A study of the prevalence of psychiatric disorders in the first-year school population in Santiago de Chile[8] observed that more than 24% of schoolchildren had some type of disorder,[5] 47% did not meet the criteria for a psychiatric disorder, and only 13% of the children with pathology received specialized treatment.[9] However, there were discrepancies in terms of the type of intervention.[10]

Another investigation with Chilean children and adolescents (four-11 years and 12-18 years) using the computerized version of the DISC-IV interview revealed that the disruptive disorder with the highest prevalence in the country was ADHD, and that gender differences were not significant. The lowest prevalences were not in Santiago, but rather in Concepción and Cautín. On the other hand, Santiago and Cautín showed higher prevalences in children than adolescents. The study showed that even if disruptive disorders are higher than the majority of studies in other countries with psychiatric interviews, the prevalence of ADHD in both men and women is different to the majority of figures from other countries.[11] Women had higher prevalences than men, which is different from what is usually reported, but it coincides with some recent Latin American studies.[12]

Although local or international studies have reported elevated rates, the majority of authors estimate that the global prevalence of ADHD in its various forms ranges between 3 and 7%, which coincides with DSM-IV figures.[13] This variability in prevalences may be caused by differences in terms, definitions of the disorder, cutoff points, diagnostic criteria, and sample selection.[14]

ADHD causes problems in the executive control of behavior, and it affects executive processes and functions involved in teaching and learning tasks, and in family, school, and social adaptation. It may appear during the first 12 years of life[15] and it is identified due to lack of attention, impulsiveness, intolerance of frustration, hyperactivity, difficulties in sustaining attention, and the presence of learning disorders.[16] The reality in Chile indicates that the population is usually diagnosed after starting education and especially in early teaching, as it is during this stage that certain learning, attention, and concentration difficulties are mostly identified, as well as alterations in behavior and impulsiveness. These difficulties require a detailed assessment of the educational aspects[17] and they become a relevant public health problem, given that their impact on the child, their family, the schools, and society in general is highly significant and has long-term consequences.[5]

The high impact of symptomatology on the development of the individual interferes in their socio-emotional and cognitive functioning. Furthermore, it causes an important dysfunction at a personal, group, and family level, due to which they require not only early detection of symptoms, but also timely intervention to favor normal psychological development, and prevent chronification and continued comorbidities in adult life.

However, one of the difficulties present in Chilean public health is not having adequate instruments to allow for early identification of the disorder, or that existing instruments do not recognize the manifestations of symptoms in their totality. As such, even when symptomatology tends to interfere in the social, academic, or working activity of the subjects' development level, standardized clinical tools to assess the level of dysfunction are not available. This circumstance makes it common for them to be labeled bad students, as academically, their grades are usually low, they are suspended more than their peers, and they have more learning difficulties, especially when they do not receive timely support.[18]

On the other hand, clinics need information to improve their case histories, define the clinical framework, and judge the effect that ADHD symptoms have - on academic achievement, social, school, and family relationships, self-esteem, and activities in daily life. However, despite families and teachers collaborating on this task, collecting information is not always timely enough, and less so the devolution to schools, which hinders specialized psychopedagogical action. As such, to enable efficient and timely diagnoses to be established, not only do teachers need the information that is necessary and vital for diagnosis, but they also need instruments that allow variations in the student's habitual behavior to be recognized,[19] which must be sensitive to variations associated with the source of information, and the age and sex of the person being assessed.[20] Having adequate instruments and epidemiological studies will enable characteristics referring to lack of attention, impulsiveness, and behavioral disorders in the Chilean school population to be

studied, which will facilitate psychopedagogical treatment differentiated by gender and/or level of education.

METHOD

Study design

The study was descriptive, quantitative, and non-experimental. It took place in the provinces of Concepción and Los Ángeles in the Bío Bío region of Chile.

Sampling

Some 219 elementary and secondary school teachers participated in the study, working in public and subsidized schools in the provinces of Concepción (66.04%) and Los Ángeles (35.15%). The selection criterion was to be a teacher of the students being assessed. All of them had to evaluate a total of 508 students with the instrument which will shortly be described. Of these, 144 had a diagnosis of ADHD; 110 did not have an objective diagnosis but it was suspected that they may have the condition, and the remaining 254 were common students (without a diagnosis or suspected condition) (table 1).

Students in the first group (n=144), 114 men and 30 women, were diagnosed with ADHD by the Children's and Young People's Psychiatric Service at the Guillermo Grant Benavente de Concepción Hospital, and their ages ranged between six and 18 years (M=11.47; SD=2.98). The second group of students (n=110), 67 men and 43 women, did not receive treatment in the public healthcare sector, nor did they have a diagnosis of ADHD, but during the semester, they had required a lot of psychopedagogical attention due to having problems with attention-concentration, impulsiveness, and poorly-adjusted behavioral patterns. In other words, it was suspected that these students might have the disorder. Their ages ranged between six and 14 years (M=9.76; SD=2.07). A third group (n=254) was made up of students who had no objective diagnosis of the disorder, nor was it suspected that they could have it. Their ages ranged between six and 18 years (M=10.72; SD=2.75).

The selection of students in the first group was carried out intentionally among the consultant population of the Children and Young People's Unit of the Concepción Regional Hospital's Psychiatric Service. Students in the second group were selected incidentally from an subsidized educational center on the basis that they had no clinical diagnosis, but their teachers suspected that they could have ADHD. Students in the third group were selected from schools which did not have students in treatment in the public or private healthcare sector, and for the lack of pathology or suspicion of the same. The equivalence of the groups in the type of schools was taken into account (public or subsidized), as well as age, level of education, and sex, in order to be equal with the subjects of the first two groups in those variables.

The students assessed (n=508), 362 men and 146 women, were aged between six and 18 years (M=10.73; SD=2.75). Some 55.1% were in primary education in subsidized centers, and 33.9% were in public centers. Some 5.5% studied in public secondary schools and 4.3% were in subsidized centers. The remaining 1.2% attended special schools. Most of the students lived in Los Ángeles (254 students), followed by Concepción (162), and a minority lived in other locations.

Instruments and variables

The Scale for Assessing Attention Deficit Hyperactivity Disorder (EDAH)[20] allows an evaluation of the primary traits of ADHD in a simple and objective way, by means of the information given by the subject's teacher.[20] It has 20 items with two subscales of ten items each: hyperactivity/attention deficit and behavioral disorders. The first subscale is also made up of two subscales, with five items each: hyperactivity/impulsiveness and attention deficit. Responses are assessed on a Likert-type scale of four grades ranging from "None" to "Very much" in terms of the behavior present. Its theoretical framework has a double-inspiration: on the one hand, the research by Conners and the adaptations of the scales made by the authors, and on the other, the distinction between forms of ADHD that are primarily attentional, hyperactive/impulsive, and combined, as set out in the DSM-IV.[20]

The viability obtained by the authors is shown in table 2, while table 3 shows the items making up the original EDAH Scale, distributed by area and factor.

Bearing in mind that the EDAH Scale was constructed and assessed in Spain, to adapt it to the Chilean educational context, starting from the theoretical framework of the original scale, a group of ten experts was asked to read each of the items on the original scale and formulate the adequate semantics necessary to improve understanding for a teacher in a Chilean classroom. The experts were two child psychol-

Table 1. Distribution of frequencies by type of student

Type of student	n	P	M	SD
Students with ADHD	144	28.30%	11.47	2.98
Students with suspected ADHD	110	21.65%	9.76	2.07
Common students	254	50.00%	10.72	2.75

Table 2. Coefficients of reliability of the original EDAH scale

	Hyperactivity, impulsiveness	Attention deficit	ADH	Behavioral disorders	Overall scale
ítems	5	5	10	10	20
Alpha	0.849	0.898	0.874	0.899	0.929

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Table 3. Variables of the Scale (Farré and Narbona, 2000)

Variables of the scale
Area I: Hyperactivity/impulsiveness/inattention
Hyperactivity/Impulsiveness: 1, 3, 5, 13 and 17
Attention deficit: 2, 4, 7, 8 and 19
Area II: Behavioral disorders
6, 9, 10, 11, 12, 14, 15, 16, 18 and 20

ogists, three clinical psychologists, two teachers in elementary education, and three psychopedagogists).[21] Based on these semantic adjustments, all items in the original scale were modified, which led to a variance in the meaning on which they were originally drafted. For the purposes of correction, and so that the items do not sanction positive behavior, the score originally proposed by the authors was inverted in items 6 "Enjoys working in a group and respects the opinions of others", 7 "Usually pays attention to the teacher, showing interest in school activities", 9 "Has good interpersonal relationships with classmates", 10 "Recognizes their mistakes", 11 "Behaves appropriately in social or classroom situations", 12 "Accepts the teacher's authority and listens to advice", 12 "Respects the opinion and participation of classmates", 16 "The student obeys pre-established rules", and 18 "Gets along with most of their classmates". As the changes meant setting out the statements in a positive sense, the scores on the assessment scale were inverted so that "None" had three points and "Very much" had none. These changes meant that some elements referred to social behavior and acceptance by the group.

Procedure

Data was obtained with the aforementioned questionnaire which was administered to the teachers, who were informed of the objectives and general characteristics of the study. They were invited to complete the scale based on the behavior observed in the classroom (of students previously diagnosed with the disorder, those who were suspected of having it, and of common students) and their information was guaranteed to be kept private. Through obtaining verbal consent, and following the criteria relevant to informed consent by the National Commission for Scientific and Technological Investigation in Chile, the participants had indefinite time to complete the scale, they had assistance in person or by telephone of a researcher to clarify any doubts, and they did not receive payment.

In parallel with the expert consultation, the clinical data of the consultant population of the Concepción Child Psychiatric Service was examined during the first semester of the academic year. Of the subjects seen (n=504), 40.47% (n=204) were diagnosed with ADHD. Schools were visited for the teachers to complete the scale, which enabled information to be gathered on 144 students. Incidentally, a subsidized school was selected in the area of Concepción (suspected group) and the intentional sampling (common group) was done with students in public and subsidized schools in Los Ángeles.

Statistical analysis

The design integrates a correlational method with a retrospective *ex post facto* design. Descriptive analyses were carried out with the aim of studying the dimensionality of the adapted EDAH Scale: factorial (exploratory and confirmatory), multi-group, reliability, and discrimination analyses were all carried out. The statistical procedures were carried out using SPSS 20.0 and LISREL 8.71 software.

RESULTS

According to the original structure proposed by the Scale's authors,[20] and as indicated in the previous section, the dimension of hyperactivity/impulsiveness was comprised of items 1, 3, 5, 13, and 17; the dimension of attention deficit was made up of elements 2, 4, 7, 8, and 19; and finally, the dimension of behavioral disorders was made up of items 6, 9, 10, 11, 12, 14, 15, 16, 18, and 20. With these references, and taking into account on the one hand the semantic modifications introduced to make it suitable for the Chilean reality, and on the other, the cultural or social differences that may exist between the Spanish and Chilean contexts, it was necessary to corroborate whether the dimensions remained the same. To answer this, and considering the responses given by the teachers for their subjects (n=508), the model was subjected to a Confirmatory Factorial Analysis (CFA) using the method of weighted least squares. The overall indexes for goodness of fit and the standardized solution are shown in table 4. Given the raised quadratic error, it was decided to analyze the dimensionality of the instrument using Exploratory Factorial Analysis (EFA) and later, Confirmatory Factorial Analysis (CFA).

The EFA was done with Varimax rotation and the weighted least squares method of estimation. According to the original structure, the sedimentation graph,[21] and the Kaiser criteria,[22] three actors were extracted, and later the saturation of each one of the elements was analyzed in the corresponding factor. The KMO measure of sampling adequacy was 0.955 and the Bartlett's sphericity test showed an $\chi 2=8640.46$; gl=190; p=0.00). Table 5 shows the factorial structure that was obtained.

The evidence of construct validity provided by the exploratory analyses were the basis to study the confirmatory structure of the adapted EDAH Scale. The CFA was done with the method of estimating the least weighted squares. As well as the statistical criteria derived from the EFA, the specification of the model followed the theoretical criteria

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Table 4. Completely standardized solution for the theoretical model

Items	Behavioral disorders	Hyperactivity, impulsiveness	Attention deficit
6	0.79	–	–
9	0.63	–	–
10	0.79	–	–
11	0.86	–	–
12	0.90	–	–
14	0.85	–	–
15	0.75	–	–
16	0.93	–	–
18	0.75	–	–
20	0.80	–	–
1	–	0.73	–
3	–	0.89	–
5	–	0.72	–
13	–	0.84	–
17	–	0.90	–
2	–	–	0.58
4	–	–	0.74
7	–	–	0.78
8	–	–	0.67
19	–	–	0.66
F1	1.00	–	–
F2	0.80	1.00	–
F3	0.91	0.78	1.00

Table 5. Factorial matrix rotated for adapted EDAH responses

		F1	F2	F3
7.	Usually pays attention to the teacher, showing interest in school activities	0.76	–	–
6.	Enjoys groups work and respects the participation of others	0.71	–	–
11.	Behaves suitably in social or classroom situations	0.66	–	–
12.	Recognizes the teacher's authority, and listens to instructions	0.66	–	0.50
18.	Gets along with most classmates	0.65	–	0.53
16.	Follows pre-established rules	0.64	0.42	–
14.	Respects classmates' opinions and participation	0.64	–	0.45
2.	Does not achieve highly at school	0.61	–	–
9.	Has good interpersonal relationships with classmates	0.61	–	0.49
10.	Recognizes their mistakes	0.53	–	0.49
8.	Does not finish activities they started	0.51	0.42	–
13.	Needs to move around constantly	–	0.80	–
1.	Generally moving around in class	–	0.79	–
3.	Interrupts their classmates' work	–	0.77	–
4.	Easily distracted in class	0.47	0.67	–
15.	Occasionally seems angry and unkind for no apparent reason	–	–	0.75
20.	Disapproves of the teacher's suggestions	0.40	–	0.62
19.	Usually gets easily frustrated	–	–	0.61
17.	Generally finds it difficult to control impulses	–	0.54	0.61
5.	Needs their demands to be satisfied immediately	–	0.45	0.52

Table 6. Completely standardized solution for model 1

Items	Prob	Impuls	Inatt
2	0.57	–	–
6	0.79	–	–
7	0.78	–	–
9	0.63	–	–
10	0.79	–	–
11	0.86	–	–
12	0.90	–	–
14	0.84	–	–
16	0.96	–	–
18	0.76	–	–
5	–	0.71	–
15	–	0.81	–
17	–	0.89	–
19	–	0.71	–
20	–	0.86	–
1	–	–	0.72
3	–	–	0.89
4	–	–	0.79
8	–	–	0.73
13	–	–	0.85
Prob	1.00	–	–
Impuls	0.84	1.00	–
Inatt	0.81	0.78	1.00

by Farré and Narbona.[20,23] Basically, the analyzed structure corresponded with that obtained in the EFA. The completely standardized solution, correlations between the dimensions of the proposed model (model 1), and overall indices of goodness of fit are shown in table 6.

In light of these results, it would not be entirely reasonable to accept the null hypothesis about the suitability of the model to the data (elevated RMSEA value). However, given the eigenvalue obtained in the EFA, as well as the high correlation shown between the three higher-order factors, it seemed appropriate to try a higher order structure.

The structure of model 2, with the completely standardized solution, and the indices of goodness of fit are show in table 7. An increase of χ^2 of 83.30 was seen for three degrees of freedom which indicates that model 2 is a significant improvement on model 1. Even if model 2 theoretically sustains itself, from a statistical point of view, the RMSEA would still be very high, because of which it was decided to investigate the indices of modification, which indicated that the model improved saturating item 8 in the factor 1 and item 17 in the factor 3.

The indices of goodness of fit of this new model (model 2, taking into account the indices of modification) were: χ^2=260.65 (gl=162; p=0.00); RMSEA=0.08, with an interval of 90% comprised between 0.06 and 0.11; GFI=0.99 and AGFI=0.99, plus the increase in χ^2 was 19.58 for two degrees of freedom, which supposes a significant difference. These results empirically endorse the proposed structure, whose standardized solution is shown in Figure 1. It seems logical

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Table 7. Completely standardized solution for model 2

Items	Prob	Impuls	Inatt
2	0.57	–	–
6	0.79	–	–
7	0.78	–	–
9	0.63	–	–
10	0.79	–	–
11	0.86	–	–
12	0.90	–	–
14	0.84	–	–
16	0.92	–	–
18	0.76	–	–
5	–	0.71	–
15	–	0.81	–
17	–	0.89	–
19	–	0.71	–
20	–	0.86	–
1	–	–	0.72
3	–	–	0.89
4	–	–	0.79
8	–	–	0.73
13	–	–	0.85
Second order factor	0.62	0.19	0.12
Prob	1.00	–	–
Impuls	0.84	1.00	–
Inatt	0.81	0.78	1.00

that item 8 "Usually does not finish activities they started", as well as saturating the factor of hyperactivity and inattention (factor 3), also saturates in poor behavior factor (factor 1), if we consider that not finishing tasks at school is an unsuitable behavior. On the other hand, item 17 "generally has difficulty controlling impulses", as well as being an indicator of impulsive behavior, saturates in hyperactivity and inattention factor (factor 3), agrees with the results of Farré and Narbona18 in that hyperactivity and impulsiveness made up their first factor.

The basic psychometric characteristics of the dimensions obtained in the CFA, these are summarized in table 8, noting that the reliability for the first and second order factors were satisfactory. In the same way, the average discrimination passed the absolute value of 0.30 in all cases, which indicates adequate values.

Table 8. Descriptive in the total sample for first and second order factors

Statistics	Prob	Impuls	Inatt	ADH
Mean	18.39	8.27	10.30	36.96
Standard Deviation	6.75	3.75	4.38	13.63
Standardized symmetry	-0.74	-0.23	-0.31	-0.58
Standardized kurtosis	0.40	-0.61	-0.48	0.09
Cronbach's Alpha	0.92	0.87	0.89	0.86
Mean discrimination	0.69	0.69	0.711	0.72
Factor-Total corrected correlation	0.82*	0.78*	0.80*	–

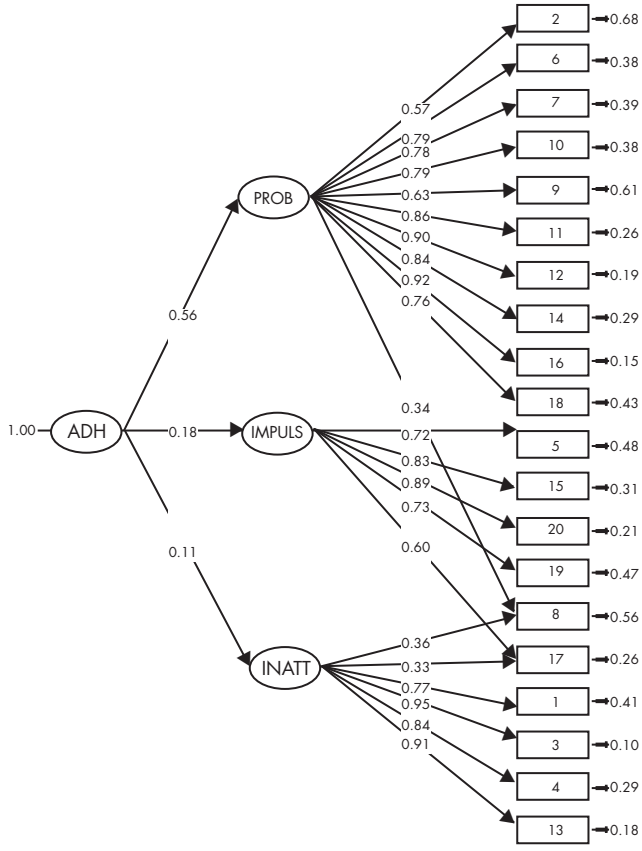

Figure 1. Model 2 taking into account indices of modification.

DISCUSSION AND CONCLUSION

In order to try and meet the aims of the investigation, and due to the need to have valid and reliable instruments to assess students with ADHD,[20,24,25] this investigation adapted and obtained evidence of validity for the three dimensions of the disorder: behavioral problems, impulsiveness, and attention deficit, based on exploring the psychometric properties of the EDAH Scale, adapted in a sample of elementary and secondary students in Chile.

At a general level, adequate indicators were obtained which were similar to those described by Farré and Narbona[20] in that the mean scores of the scale items were very similar to the theoretical mean. In other words, the psychometric properties of the items are adequate.[26,27] This allows the conclusion that the adaptation of the EDAH has acceptable psychometric characteristics and that in general, it shows an adequate internal consistency and its elements have adequate power of discrimination.

The construct validity, provided by Factorial Analysis, indicated that the original structure proposed by the authors did not replicate in the Chilean population, due to which the model was subjected to a CFA. Based on the study carried out of the internal structure, it is possible to define three

factors which explain "behavioral problems", "impulsiveness", and "attention deficit", for students diagnosed with ADHD as well as those who present some symptomatology but have not yet been diagnosed, and also in "common" students. These factors explained 71.61% of the total variance, with an Alpha coefficient of 0.948. These characteristics differ mildly to those obtained by Farré and Narbona,[20] which seems reasonable if we consider the adaptations made and that the participants belonged to different cultural contexts. Equally, the differences could be due to the teachers' bias,[28] given that even if there is consensus in the centers in terms of behavior and following rules, experience indicates that teachers would tend to be more punishing and less tolerant of this. However, the investigation managed to inquire into behavior problems and lack of attention, thanks to which consistency was found in the scores, despite different teachers completing the test in different educational scenarios and with different students. These results agree with other investigations in which the scores given by the teachers revealed a good predictive capacity to detect future mental health problems.[29,30]

The differences could also be related to the semantic suitability of the scale, or the sample selection. The original study analyzed the characteristics of 666 students (according to parent and teacher reports), enrolled in schools with a good socioeconomic level; while our investigation included 508 students without establishing differences by group or socio-economic level. Hypothetically, it would be possible expect that families and teachers are underinformed about the clinical framework studied, unlike the information that may be available to teachers who work in public and subsidized Chilean schools, that have a high rate of vulnerability, numerous courses, are frequently poorly managed by teachers who do not have sufficient psychopedagogical resources, and may not have specific training to deal with children with ADHD.[31] In this way, the expectations, interaction, and use of teacher's time would influence the achievement and behavior of students.

On the other hand, although considering two sources of information to complete the scale (families and teachers in the original study) has its advantages, it also implies assuming discrepancies in the results. These are more closely linked to the subjective assessment made by the assessors[18] and which were seen to be influenced by the level of tolerance, requirements, and expectations. In this sense, the family usually minimizes their children's unsuitable behavior, or perhaps their threshold for tolerance may be higher than teachers'. This might lead to lower scores on the scales.[32] However, this circumstance needs further analysis though a study on incremental validity which shows the relative contributions of each informant.[32]

In conclusion, the Chilean adaptation of the EDAH represents ADHD as defined by its authors.[20] Furthermore, the scale is shown to be stable in two culturally different countries. Therefore, it is a reliable scale[33] with a dimensionality that replicates the theoretical context and some indicators of internal consistency, and of adequate construct validity, and it also has consequential analysis which attempts to respond to social requirements and orient decision-making.[34] The effects of consequential validity mobilize towards a social change of detection and maintenance of ADHD treatment, with huge implications in social, health, and educational policies. This has an effect on the dynamic and organization of schools, as well as the improvement of interpersonal family relationships.

However, despite the results seeming to indicate a good psychometric fit of the adapted EDAH, it should be noted that it would be difficult to mark the data found as definitive, given that even though the scales may have an important function in detecting subjects with ADHD, there are no perfect scales, and all confirmations of suspected cases should be corroborated with a more detailed psychological evaluation.[25]

On the other hand, although the analyses carried out make this a reliable instrument to approach the study of Attention Deficit Hyperactivity Disorder in the Chilean context, it would be very relevant to study the scale's behavior in a wider population and contrast the results in order to validate the instrument.

One limitation of this study, which should be overcome in future investigations, is that the results are not easily able to be generalized because of the restrictive sample. Selections were made from two provinces and not all over the country, as well as from a single, low socio-economic level and with an age range that was too wide, from six to 18 years; it has been demonstrated that the disorder does not manifest itself equally in childhood as it does in adolescence.[35]

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Conflict of interest

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