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Validity of the Child Psychiatric Hospital Teacher Questionnaire for the assessment of ADHD. Teacher's version

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Introduction. Teacher's rating scales for the evaluation of attention deficit and hyperactivity disorder (ADHD) and conduct disorders have been shown to be useful and valid tools. The Child Psychiatric Hospital Teacher Questionnaire (CPHTQ) of the Hospital Psiquiátrico Infantil Dr. Juan N. Navarro was designed for the assessment of ADHD symptoms, externalizing symptoms and school functioning difficulties of children and adolescents.

Methods. Internal consistency, criterion validity, construct validity and sensitivity of the scale to changes in symptom severity were evaluated in this study.

Results. The scale was administered to 282 teachers of children and adolescents aged 5 to 17 years who came to a unit specialized in child psychiatry. The validity analysis of the instrument showed that the internal consistency measured by Cronbach's alpha was 0.94. The factorial analysis yielded 5 factors accounting for 59.1% of the variance: Hyperactivity and conduct symptoms, predatory, conduct disorder, inattentive, poor functioning and motor disturbances. The CPHTQ scores on the scale showed positive correlation with the Clinical Global Impression (CGI) scale in the patients' response to drug treatment.

Conclusions. The CPHTQ shows adequate validity characteristics that demonstrate its utility in the evaluation of patients with ADHD and its comorbidity with other behavior disorders.

Key words:
Teacher questionnaire. ADHD. Validity.

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atención e hiperactividad (TDAH) por maestros han mostrado su validez y utilidad. El Cuestionario para maestros del Hospital Psiquiátrico Infantil Dr. Juan N. Navarro fue creado para la evaluación de los síntomas de TDAH, trastornos externalizados y dificultades en el funcionamiento escolar de niños y adolescentes.

Método. En el presente estudio se evaluó la consistencia interna, validez de criterio externo, constructo y sensibilidad de esta escala a los cambios por el tratamiento.

Resultados. La escala se aplicó a 282 pacientes de 5 a 17 años que acudieron a consulta en una unidad especializada en psiquiatría infantil. El análisis de validez del instrumento mostró que la consistencia interna medida por el alfa de Cronbach fue de 0,94. El análisis factorial de la escala derivó en 5 factores que explicaron 59,1% de la varianza: hiperactividad y problemas de conducta, disocial predatorio, inatención, dificultades en el funcionamiento y alteraciones motoras. La puntuación de la escala mostraron correlación con las de la escala de impresión clínica global en respuesta a tratamiento farmacológico.

Conclusiones. El CMHPI presenta características de validez que muestran su utilidad en la evaluación de pacientes con TDAH y su comorbilidad con otros trastornos de conducta.

Palabras clave:
Maestros. TDAH. Validez.

Estudio de validez del Cuestionario para trastorno por déficit de atención y trastorno de conducta. Versión maestros

Introducción. Los instrumentos diseñados para la evaluación de los síntomas de trastorno por déficit de

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INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a chronic neuropsychiatric problem that initiates in the pediatric age. It has a worldwide prevalence of 3% to 5% of the general population, with greater presentation in men.¹ The disorder is characterized by attention difficulties, hyperactivity and impulsivity that are not in accordance with the child's development, accompanied by tendency to accidents, difficulties in social relationships, learning and emo-

tional regulation and alterations in motor coordination, factors that decrease the quality of life of the patients.²

In the evaluation of patients with ADHD, the application of diagnostic interviews, severity scales and questionnaires for parents and teachers are included in order to obtain data on the disease severity and global functioning of the patients.³ The teachers' role in the detection and treatment of ADHD patients is fundamental because they are the ones who frequently identify attention and behavioral problems in their students and send them to receive specialized care. Furthermore, they can observe the effects of the treatment on their behavior and school performance through daily contact with the patient.^{4,5}

Among the ADHD severity scales existing in Spanish, there are some designed for teachers, as, for example, Conners Scale,⁶ whose version for parents was previously validated in this setting.⁷ Later studies reported that the teachers' version showed greater internal consistence than the parents' version,⁸ and even suggested that the reports of the teachers may be more objective than those of the parents.⁹

Taking into account that the teachers needed instruments in order to evaluate the severity of the patients' ADHD symptoms and functioning within the school, a group of clinical experts elaborated the Questionnaire for teachers of the Hospital Psiquiátrico Infantil Dr. Juan N Navarro (CPHTQ), within that Institution.

The CPHTQ was designed to be filled out in 10 to 15 minutes. It is made up of statements that are answered by the teachers as Never, Sometimes, Frequently and Very Frequently, grading them from 0 to 3 points. The first 33 items evaluate distractibility, hyperactivity, impulsivity and other behavior disorder symptoms. They are followed by items that evaluate mood status, learning disorders and evaluation of the subject within the school setting, since it asks if the behaviors observed in the student could be due to his/her development stage or exceeds the normality of the group and if the student has eyesight problems or hearing problems that could alter his/her functioning. It also includes the evaluation of the teachers in regards to the participation of the parents in the academic support of the child.

The CPHTQ considers manifestations of behavioral problems that children who are in the first years of primary education or in adolescents may have, offering an explanation for each item as examples.

This study has aimed to determine the validity of criterion, construct and internal consistence of this instrument and to determine the sensitivity of the instrument in the detection of the changes in response to the treatment.

METHOD

The study was made in the out patient services and emergency service of the Hospital Psiquiátrico Infantil Dr.

Juan N. Navarro, an institution that receives patients from 0 to 17 years referred from other health care services or that are sent by the schools.

Sample Description

The sample included patients from 5 to 17 years who came for the first time to the medical office and who were diagnosed of ADHD according to DSM-IV criteria¹⁰ by a clinician trained in child psychiatry. The patients should belong to the regular school system. Comorbid patients with psychosis, bipolar disorder or substance abuse as well as those who provided an incomplete form of the CPHTQ were excluded.

Procedure

The patients were evaluated and were given a CPHTQ to fill out before initiating treatment. A subsample of 26 patients was selected randomly from this sample and their teachers were asked to answer the questionnaire again one month after the patient had initiated drug treatment. This second questionnaire was compared with the scores of the Clinical Global Impression (CGI) Scale¹¹ in order to determine changes due to the treatment.

Statistical Analysis

The statistical analysis included descriptive statistics for clinical and demographic variables. Internal consistence of the instrument was examined with Cronbach's alpha coefficient.¹² In order to determine the validity of the scale construct, a factorial analysis with Varimax rotation was performed and the factors with Eigen value greater than 1 were selected, including those items that had a factor load greater than 0.4.¹³ The capacity of the Questionnaire for teachers to reflect the effects of the treatment was evaluation using the paired T tests and Pearson's correlation. Those values with $p \leq 0.05$ were considered significant.

RESULTS

The sample included 282 patients (84% male, with mean age of 7.7 ± 2 years), whose teachers filled out the CPHTQ.

The analysis of the instrument validity showed that the internal consistence measured by Cronbach's alpha was 0.94. The factorial analysis of the scale produced 5 factors that accounted for 59.1% of the variance: factor I included hyperactivity symptoms and behavior problems, factor II included symptoms of predatory subtype of dissocial disorder, factor III included inattention symptoms, factor IV difficulties in functioning and factor V motor and immaturity disorders.

The content of the factors and their Eigen value are shown in table 1.

Table 1		Factorial Analysis of the Child Psychiatric Hospital Teacher Questionnaire				
Eigen Value	Factor I	Factor II	Factor III	Factor IV	Factor V	
Percentage of the variance	12.64 38.3%	2.8 8.5%	1.75 5.3%	1.22 3.6%	1.1 3.3%	
DISTRACTED: Difficulty to concentrate, subjects is distracted by anything			0.720			
APATHETIC: Subject does not finish what he/she begins, tasks, homework, etc.			0.810			
CARELESS: Poor personal care, does not take care of clothes, tools, games, etc.			0.547			
FORGETFUL: Easily forgets what has been learned			0.595			
IMPULSIVE: Does not measure the consequences of his/her attitudes	0.770					
DEFIANT: Does not obey the teacher's instructions or those of the school authorities and challenges them	0.758					
UNTRUTHFUL	0.454					
LOUD-VOICED	0.756					
DISORGANIZES THE GROUP	0.772					
RESTLESS: Subject constantly gets up from seat	0.735					
EGOCENTRIC: Seeks attention of the other children and teachers	0.678					
Takes objects that do not belong to him/her from the teachers or classmates	0.530					
LOW SELF-ESTEEM: Speaks badly of oneself				0.618		
It is necessary to remove him/her from the classroom				0.532		
It has been necessary to temporarily suspend the student				0.733		
TENDENCY TO FANTASY: Invents stories				0.520		
AGGRESSIVE: He/she bothers other children and picks fights	0.764					
DESTRUCTIVE: He/she breaks the tools or school materials	0.571					
CRUEL: With his/her classmates or with animals		0.483				
LEWD: Makes obscene signs, coarse vocabulary, practices behavior with sexual desinhibition		0.422				
REBELLIOUS: He/she does not obey school rules, is stubborn	0.679					
CLUMSY: Dirties and breaks manual works or materials to elaborate them			0.581			
Difficulties to develop a type of exercise or game					0.604	
Frequently falls					0.770	
Bumps into furniture or classmates					0.737	
Can't wait form his/her turn	0.522					
Cheater		0.405				
Does not know to loss		0.665				
INFANTILE: Acts as a younger child					0.529	
UNPLEASANT: Is rejected by the other children		0.468				
Nothing satisfies him/her		0.525				
SELFISH		0.704				

Significant differences were found between the initial and final scores of the questionnaire items for the teachers (37 ± 12.1 vs. 22.7 ± 14.4 points, $t = 7.7$, 26 degree of freedom, $p > 0.01$) as well as for the CGI severity subscale (4.6 ± 0.73 vs. 3.2 ± 0.8 points, $t = 7.7$, 26 degree of freedom, $p > 0.01$). Total grade of the questionnaire for the teachers showed a correlation with the CGI-severity scale ($r = 0.65$, $p > 0.001$).

DISCUSSION

The purpose of this study was to evaluate the validity of criterion, construct and internal consistence of a self rating questionnaire for teachers and the sensitivity of the instrument in the detection of changes in response to treatment.

For the present research study, the sample of patients corresponded to a population referred from the schools due to behavior problems and who were diagnosed of ADHD. The sample size was greater than that reported in the validation studies of Conners for teachers in this setting.¹⁴ Given that most of the validation studies of self rating instruments for teachers in Spanish have been made in an open population,^{8,15,16} the results of this study make it possible to evaluate the utility of this type of instrument in the follow-up of the diagnosed subjects. The demographic characteristics of the sample are representative of the distribution by age and gender of the population who come to the child psychiatry departments of our setting. Specifically, the mean age of the sample corresponds to the time of initiation of primary education, showing that the CPHTQ is capable of evaluating the symptoms and functioning of the patients when they are detected. Future studies may be able to establish the utility of this questionnaire in pre-school patients.

The instrument showed adequate internal consistence. The factorial analysis of the scale grouped the symptoms of inattention and hyperactivity-dissocial disorder into different factors. This suggests that this instrument can identify patients in the ADHD inattentive subgroup. In a similar way to studies of other instruments for ADHD that are self-applicable for teachers,⁸ the hyperactivity-dissocial factor represented a greater percentage of the variance, followed by the predatory-dissocial factor, which would indicate the most frequently reported symptoms in the patients evaluated, whose behavior manifestations were easily identifiable by their teachers. This syndromatic combination has led to the design of other instruments that evaluate externalized disorder symptoms and not only ADHD^{8,17,18} and supports the possible inclusion of dimensional diagnosis in the diagnostic classifications.¹⁹ Finally, factor V grouped the difficulties in motor coordination, including the observation that the subject does not seem to have the motor skills that the rest of the subjects of their age have. This factor represents the association between ADHD and difficulties in motor functioning and the possibility that the teachers may identify them.²⁰⁻²²

The scale showed sensitivity to the changes in the symptoms, as demonstrated by the differences in the scores before and after the treatment and the correlation with the CGI scale.

The results of this study should be considered taking into account that the population studied corresponds to the users of the mental health services in Mexico City, so that they cannot be generalized to other populations.

In conclusion, the CPHTQ has validity characteristics that show its utility in the evaluation of patient with ADHD and its comorbidity with other behavior disorders. Future studies may be able to establish the utility of this questionnaire as a screening instrument in the open population.

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