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# Attention-Deficit Hyperactivity Disorder: Agreement between Clinical Impression and the SNAP-IV Screening Tool

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**Introduction:** The CONCOR study aimed to determine the predictive value of the SNAP-IV screening tool for ADHD relative to the pediatricians' clinical global impression of the presence of ADHD in children attending their practice.

**Methods:** In this multicentre, cross-sectional, case-control study participated pediatricians from all over Spain and each pediatrician enrolled at least six children over the age of 6 years who had no previous diagnosis of ADHD, three whom they considered to have symptoms characteristic of ADHD (DSM-IV criteria) and three children who did not. Screening with the SNAP-IV tool was completed by parents in the waiting room prior to a consultation (for any reason) and results were compared with the pediatrician's clinical global impression.

**Results:** Results for 7263 Spanish children (>6 years of age) showed 'good' concordance between the SNAP-IV screening tool and the pediatricians' clinical impression of ADHD (kappa concordance index 0.6471; 95% confidence intervals: 0.6296–0.6646), with acceptable sensitivity and specificity (82.3% and 82.4%, respectively). Based on an estimated ADHD prevalence of 3–10%, the negative predictive values of SNAP-IV were 97.7%–99.3% and positive predictive values were 12.6–34.2%.

**Conclusions:** SNAP-IV is a useful screening tool that identifies children who are unlikely to have ADHD, and brings those in whom there is a high possibility of ADHD to the attention of the pediatrician for clinical evaluation.

**Keywords:** ADHD, Pediatrics, SNAP-IV, ADHD screening

*Actas Esp Psiquiatr 2013;41(2):76–83*

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**Trastorno por déficit de atención con hiperactividad: concordancia entre la Impresión clínica y el cuestionario de cribado SNAP-IV (Estudio CONCOR)**

**Introducción:** el objetivo del estudio CONCOR es determinar el valor predictivo del cuestionario de cribado SNAP-IV comparado con la Impresión clínica global del pediatra en cuanto a la presencia del TDAH según los criterios DSM-IV en los niños que acuden a consulta.

**Metodología:** en este estudio multicéntrico, transversal, de casos y controles participaron pediatras de toda España y cada uno reclutó al menos seis niños de más de 6 años de edad sin diagnóstico previo de TDAH, de los cuales tres, según el pediatra, tenían los síntomas característicos del TDAH (criterios DSM-IV) y tres no. Los progenitores rellenaron el cuestionario de cribado SNAP-IV en la sala de espera antes de la consulta (que se produjo por cualquier motivo) y los resultados se compararon con la Impresión clínica global del pediatra.

**Resultados:** los resultados de 7.263 niños españoles (> 6 años de edad) demostraron una buena concordancia entre la herramienta de cribado SNAP-IV y la Impresión clínica de TDAH de los pediatras (índice de concordancia kappa = 0,6471; intervalo de confianza del 95%: 0,6296–0,6646), con una sensibilidad y una especificidad aceptables (82,3% y 82,4%, respectivamente). Partiendo de una prevalencia estimada del TDAH del 3–10%, los valores predictivos negativos de la SNAP-IV fueron del 97,7%–99,3% y los valores predictivos positivos fueron del 12,6–34,2%.

**Conclusiones:** el cuestionario SNAP-IV es una herramienta de cribado útil que discrimina los niños que es poco probable que tengan un TDAH, y detecta los que tienen una posibilidad elevada de TDAH para que los pediatras puedan identificarlos y evaluarlos clínicamente.

**Palabras clave:** TDAH, Pediatría, SNAP-IV, Cribado del TDAH

## INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is the neurobehavioral disease that most frequently initiates in childhood and is one of the most frequent psychiatric disorders that affects school aged children. In spite of the discussion that has been taking place on the existence of ADHD, it is currently agreed that it is a neurobiological disorder characterized by inattention symptoms and/or impulsiveness and hyperactivity.<sup>1</sup>

ADHD significantly alters the life of the children who suffer it regarding psychosocial and physical functioning, behavioral problems, low self-esteem and feelings of anxiety and/or depression. These symptoms may often limit activities with friends due to psychic problems and may affect family relations and delay educational development of the child.<sup>2</sup> In fact, a statistically significant decrease was observed in academic achievement in Spanish children, aged 6-12 suffering ADHD and 55% of ADHD children who were changing from one academic cycle to another had to repeat their school course.<sup>3</sup> ADHD also increases the risk of comorbidity with other psychiatric disorders and with substance abuse disorders in adolescents.<sup>4</sup> As already indicated, the implications of ADHD go beyond the child and in severe cases may complicate family relations, increase interpersonal conflicts and in the long run limit family activities.<sup>2</sup>

As occurs in most psychiatric disorders, there is no definitive and simple method to diagnose pediatric ADHD. Although neuropsychological, pharmacological and cerebral neuroimaging studies involve the dopamine and norepinephrine pathways in the physiopathology of ADHD,<sup>5</sup> there is no physical measurement or laboratory test that is diagnostic of ADHD. Consequently, the diagnosis of ADHD is mainly clinical and is based on personal interviews with the patient and family, as well as on information from the family and school. Diagnosis is achieved by evaluating specific behavior symptoms with evaluation scales based on the Diagnosis and Statistical Manual of Mental Disorders (DSM) developed by the American Psychiatric Association (APA) or on the International Classification of Diseases (ICD) developed by the World Health Organization (WHO). However, this process may become complicated and the diagnostic procedure is time-consuming.<sup>6,7,8</sup>

The current versions of the DSM (DSM-IV)<sup>9</sup> and the ICD (ICD-10)<sup>10</sup> have similar lists of diagnostic symptoms, but they recommend different criteria to establish the diagnosis of ADHD. The ICD describes it as "hyperkinetic syndrome." The ICD-10 requires a minimum number of symptoms in the three dimensions of inattention, hyperactivity and impulsiveness to diagnose ADHD and therefore considers that it defines a subgroup of children with an especially severe type of ADHD.<sup>11</sup> The DSM-IV only defines two dimensions, inattention and hyperactivity/impulsiveness and

the diagnosis can be made with a minimum number of symptoms in one dimension. It also defines three subgroups: predominantly inattentive, predominately impulsive and combined type. The ICD-10 requires that all the criteria to be fulfilled in at least 2 situation contexts while the DSM-IV requires the presence of deterioration in more than one setting. Due to these differences in diagnostic criteria, the prevalence of ADHD according to the DSM-IV is higher than with the ICD. However, in a Pan-European study in which 1,478 children aged 6-18 with ADHD participated, diagnosis based on the DSM-IV was more solid than that made according to the ICD-10.<sup>12</sup> Furthermore, in a study conducted in the USA with young children (4-6 years) who were followed-up for 6 years, the diagnosis made using ICD-10 criteria could not identify some children with persistent symptoms of ADHD and deterioration related with it.<sup>13</sup> While in some countries, the ICD-10 is still used, the classification most frequently used in the published literature is the definition of ADHD of the DSM-IV.<sup>11</sup>

Because there are such diverse diagnostic practices that impose methodological differences in the studies published up to date, it is difficult to determine the real prevalence of ADHD.<sup>11,14,15</sup> Based on the studies that use the current DSM-IV criteria and the previous versions (DSM-III and DSM III-R), Faraone et al. calculated that the worldwide prevalence of ADHD reached 20% of the school aged children.<sup>11</sup> Another study that used different diagnostic criteria (ICD-10, DSM-IV, DSM-III and DSM III-R) and used a regression meta-analysis technique calculated a worldwide prevalence of 5.29%.<sup>14</sup>

As we previously stated, the diagnosis of ADHD is complex and requires much time. This can partially explain why the disorder is underdiagnosed in the clinical practice. This is also related to the growing pressure on the family doctors and pediatricians. A screening tool that would help in the diagnostic process would be a valuable tool for the clinical symptoms.

The CONCOR study was performed to evaluate the degree of concordance between the evaluation scale used to detect the possible presence of ADHD - the SNAP-IV screening questionnaire - and the Clinical global impression of the pediatricians regarding the presence of ADHD according to the DSM-IV criteria in the children who came to his/her office.

The SNAP-IV questionnaire was filled out by the parents in the waiting room prior to the visit they came to for any reason and the results were compared with the Clinical global impression of the pediatrician. The study hypothesis was that if the SNAP-IV showed an elevated predictive value in relation to the clinical impression of the pediatrician as regards the possible presence/absence of ADHD, it could help to diagnose ADHD in primary care by indicating when a more detailed clinical evaluation may be necessary.

## METHODOLOGY

### Study design and objectives

The CONCOR study is a multicenter, cross-sectional, case-control study whose objective was the participation of 2,000 pediatricians who were working in health care centers, outpatient clinics and hospitals throughout Spain. Each pediatrician was asked to include at least 6 children over 6 years of age who had not been previously diagnosed of ADHD. This would provide an estimated sample size of more than 12,000 children. Three of the 6 patients chosen should have a clinical impression of ADHD according to the DSM-IV and 3 others should be without a clinical impression of ADHD, independently of the reason for the visit. The father, mother or guardian were evaluated according to the SNAP-IV. Each participant filled out only one survey.

To assure that the pediatricians participating in the study were representative of the Spanish clinical practice, the health care centers from all the provinces of the country were selected homogeneously. Furthermore, data were collected from the pediatricians who participated in the study. The data included age, years of experience and type of professional practice. The principal objective of the study was to determine the level of concordance between the results of the SNAP-IV screening questionnaire and the clinical global impression of the pediatrician regarding the possible presence of ADHD. The secondary objectives were to determine the predisposition of the pediatricians to detected patients with ADHD and the usual treatment of this condition.

### Instruments

#### SNAP-IV

The SNAP-IV questionnaire is a revision of Swanson, Nolan and Pelham (SNAP) of the questionnaire published for the first time in 1983. Its items include criteria from DSM-IV (1994) for the two subgroups of symptoms of ADHD (inattention and hyperactivity/impulsiveness) and DSM-IV criteria for the oppositional defiant disorder (ODD) that is often present in children with ADHD. The SNAP-IV also contains items from the IOWA Conners questionnaires that distinguish between inattentive/hyperactivity symptoms and aggressiveness/opposition symptoms and from the Conners Index Questionnaire which is a general index of childhood problems.

SNAP-IV is based on an evaluation scale ranging from 0 to 3 (0 = no, not at all, 1 = just a little, 2 = quite a bit, and 3 = much). The scores of the subscale of SNAP-IV are calculated by adding up the scores of the items of the subscale and dividing them by the number of items, calculating the mean in this way.

#### *Clinical global impression of ADHD*

The clinical global impression scales (CGI) are commonly used to measure intensity of the symptoms, response to treatment and treatment efficacy in studies on patients with mental disorders.<sup>16</sup> Many investigators, although they recognize the validity of the scale, consider that it is subjective since the user must compare the subjects with "typical" patients based on their clinical experience. The clinical global impression scale of severity (CGI-S) is a 7-point scale that requires the clinical to evaluate the disease severity of the patient at the moment of the evaluation, in relation to the previous experience of the clinician with patients who have the same disease. Considering the total clinical experience, the severity of the disease of the patient is evaluated as: 1 = normal, not at all ill; 2 = borderline mentally ill; 3 = mildly ill; 4 = moderately ill; 5 = markedly ill; 6 = severely ill; or 7 = extremely ill.

Within the present study, it was considered that if the score on the CGI-S was 1 or 2 according to the pediatrician, the case was classified as not fulfilling the ADHD criteria according to the DSM-IV (no case of ADHD). On the contrary, if the score given by the pediatrician on the CGI-S was  $\geq 3$ , it was counted as a case of ADHD.

### PROCEDURE

In order to evaluate the level of concordance between the results of the SNAP-IV Questionnaire and the Clinical Global Impression of the pediatricians regarding possible presence of ADHD, each pediatrician was asked to include at least 6 children over 6 years of age who had not been previously diagnosed of ADHD. Three of these children should be considered to have clinical symptoms characteristic of ADHD (according to the DSM-IV criteria) and 3 children should not be considered to have them. In those children considered to have ADHD symptoms, the physicians classified the symptoms into three groups of ADHD according to the DSM-IV criteria, i.e., predominantly inattentive, predominantly impulsive/hyperactive, or combination of the previous two. At the moment in which a child came to the medical office and independently of the reason for the visit, the parent or guardian filled out the SNAP-IV questionnaire prior to the visit. Each pediatrician gathered the results into a table for analysis that included the following three subgroups: positive clinical impression of ADHD and positive result of the SNAP-IV; negative clinical impression and negative result on the SNAP-IV; negative clinical impression and positive result on the SNAP-IV; and negative clinical impression and negative result on the SNAP-IV.

The pediatricians also filled out a self-administered questionnaire that obtained their general clinical attitude towards ADHD and they answered an open question: do you

believe you have adequate information to treat children with ADHD? If the questionnaires of the pediatricians were not filled out according to the study protocol, they were returned to them for revision and correction.

### STATISTICAL ANALYSES

The data collected by the pediatricians on the possible presence/absence of ADHD (clinical global impression and results of the SNAP-IV) and the data of the questionnaires of all the pediatricians on certain safety margins and rules of internal consistency were introduced into the databases (Access 97 or later version). The cases with abnormal or contradictory values were reviewed. When necessary, contact was made with the investigator for him/her to verify them. SAS software was used for the statistical analyses. Continuous variables were presented as mean ± standard deviation (SD) and categoric variables as frequencies and percentages. The 95% confidence intervals (CI) were also calculated when appropriate. Concordance between the SNAP-IV screening questionnaire and the clinical global impression scale of the pediatrician (according to DSM-IV criteria) was evaluated using Kappa concordance index and the 95% CI. The concordance scale was the following: "very weak," <0.20; "weak," 0.21–0.40; "moderate," 0.41–0.60; "good," 0.61– 0.80; and "very good," 0.81–1.00.

Positive predictive value (PPV) and negative predictive value (NPV) of the SNAP-IV questionnaire were determined in relation to the clinical global impression scale of the physician on the presence of ADHD as the correct diagnosis, calculating both the true and false positives. The possibilities that a patient would have ADHD when SNAP-IV was positive (true positive) or did not have ADHD when the test was positive (false-positive) was calculated using Bayes theorem and the probabilities known prior to the test in primary care. As the PPV and NPV depend on the prevalence of ADHD, which could not be estimated based on this study, a conservative value of prevalence of 3–10% was used, as mentioned in the literature.

As validity markers, *sensitivity* (likelihood of a positive result in the SNAP-IV when the pediatrician had a positive clinical impression of ADHD) and *specificity* (likelihood of a negative result on the SNAP-IV when the pediatrician had a clinical impression that it was not an ADHD), were used.

### RESULTS

Between June and November 2006, 1,685 pediatricians from all of Spain were invited to participate in this study. Of these, 16 did not agree to participate and 486 did not provide the filled out questionnaires. Of the remaining 1,183 pediatricians, 14 did not provide the aggregate data of the patients in relation to the possible presence of ADHD.

Therefore, the analysis included 1,169 physicians who provided the results of 7,263 children (6.21 patients per pediatrician). Mean age of the pediatricians was 45±8.1 years (range 26–69). They had been working as a pediatrician for a mean of 19±8.5 years (range 1–43), and most (84%) were working in health care centers (Table 1).

The aggregate data of the SNAP-IV screening questionnaire showed a good level of concordance with the clinical global impression of ADHD by the pediatricians (Table 2) with a Kappa concordance index of 0.6471 (95% CI, 0.6296–0.6646). The results of the SNAP-IV and of the impression of the pediatricians on the presence of ADHD were in agreement in 82% of the cases. The discordant cases were distributed equally, with a positive clinical impression but negative result of the SNAP-IV in 9% of the cases and the negative clinical impression and positive result on the SNAP-IV in 9% of the cases. There were no statistically significant differences between the clinical impression of the physicians and the results on the SNAP-IV ( $p=0.33$ ).

Table 1	Demographic data of the pediatricians who participated in the CONCOR study (n=1.169)
Age (years)	n=1,124
Mean (SD)	44.86 (8.09)
Range (minimum. maximum)	26.00 - 69.00
Distribution	
<40 years	321 (29%)
≥40 and <45 years	201 (18%)
≥45 and <50 years	264 (23%)
≥50 years	338 (30%)
Years of practice	n=1.133
Mean (SD)	19.09 (8.50)
Range (minimum. maximum)	1.00 - 43.00
Distribution	
<15	362 (32%)
≥15 and <20	203 (18%)
≥20 and <25	213 (19%)
≥25	355 (31%)
Place of work	n=1.169
A. Health care center	981 (84%)
B. Private practice	75 (6%)
C. Hospital	47 (4%)
B and C	45 (4%)
A and C	12 (1%)
A and B	8 (<1%)
A and B and C	1 (<0.1%)

Table 2		Results of the principal analysis: concordance of the SNAP-IV screening questionnaire and the clinical impression of the pediatricians on the presence of ADHD according to the DSM-IV criteria (n=7263)		
	Positive clinical impression of ADHD	Negative clinical impression of ADHD	Total (SNAP-IV)	
Positive SNAP	3,069	623	3,692	
Attention deficit	730	286		
Hyperactivity/impulsivity	880	198		
Mixed	1,459	139		
Negative SNAP	658	2,913	3,571	
Total (clinical impression)	3,727	3,526	7,263	

Sensitivity and specificity of the SNAP-IV were 82.3% (95% IC 81.12–83.57) and 82.4% (95% CI 81.13–83.64), respectively and they were calculated using the clinical global impression of the pediatricians as golden standard. A PPV of 12.6% was achieved, estimating a prevalence of 3%, of 19.6% for a prevalence of 5%, and of 34.2% for a prevalence of 10%. The NPV were 99.3%, 98.9% and 97.7%, for estimated rates of prevalence of ADHD of 3%, 5% and 10%, respectively.

The results of the questionnaire in relation to the attitudes of the physicians towards ADHD showed that most pediatricians (90%) screened for ADHD if they thought that "it was likely that the disorder would be present" and/or "the symptoms reported suggested the presence of the disorder. Only 7% verified the presence of ADHD routinely in all children over six years (table 3). In the drug treatment of ADHD, an interesting tendency was observed with 47% of the pediatricians indicating that they almost always/always prescribe drugs for the treatment while 23% almost never/never prescribed medication (table 3). A total of 99% of the pediatricians studied said they referred the children that they considered to have ADHD symptoms to the specialist, usually to child psychiatrists (68%) and neuropsychiatrists (45%) (Table 3). Forty percent recognized the need for additional information regarding the treatment of ADHD and specifically information regarding drug treatment, clear guidelines for the management of the disease and faster screening and earlier detection tests.

## DISCUSSION

The CONCOR study has shown that the SNAP-IV questionnaire effectively detects Spanish children having low potential to suffer ADHD, that is, there is good concordance between the clinical global impression of the pediatricians and the presence/absence of ADHD according to the DSM-IV criteria (kappa index 0.6471, with narrow CI and elevated NPV (>90%). The SNAP-IV also has elevated specificity and sensitivity with narrow confidence intervals. This suggests that it is likely that the results are solid.

Early diagnosis of ADHD is important since delays in its detection, evaluation and treatment negatively affect quality of life and educational development of the child.<sup>2</sup> Escobar et al. found that the quality of life of 124 children recently diagnosed of ADHD (according to the DSM-IV) in 13 psychiatry and child neurology units throughout Spain was not only lower than that of healthy children paired by age, gender, and health care area (n=120), but also lower than that of children with similar age recently diagnosed of asthma (n=93).<sup>2</sup> In this same cohort of children with ADHD, there was considerable delay between the onset of the symptoms and diagnosis of the disorder (2–12 years; mean 5.8±2.3 years). This stresses the difficulty to diagnose ADHD in the clinical practice. In fact, the authors state that early detection of this disorder may redirect the educational and psychosocial development of most children with ADHD. Therefore, it is somewhat disturbing that only 7% of the pediatricians who participated in the study indicated that they regularly investigate the presence of ADHD in children over six years of age.

There are several estimations of the prevalence of pediatric ADHD in Spain: 14.4%, 5.3% and 3.0% in children of 8, 11 and 15 years of age, respectively in Valencia, using DSM-III-R criteria;<sup>17</sup> 8.0%±2.7% using the DSM-III-R criteria in children of 10 years (n=387) in Valencia;<sup>18</sup> 4.6% (99% CI 3.0–5.8%) using the DSM-IV criteria in children of 6–11 years of age (n=1509) in Mallorca;<sup>19</sup> and 6.3% in the global population in Spain according to the consumption of methylphenidate which was the only medication available for the treatment of ADHD in Spain when the study was carried out.<sup>20</sup> However, it is generally accepted that the prevalence of ADHD in Spain is 3–6%.<sup>20</sup> This would indicate that in a class of 33 children, it is likely that there would be at least one child with ADHD.

The symptoms of ADHD persist until adolescence in approximately 80% of the children and may even persist into adult life.<sup>11</sup> In a study conducted in 10 countries within America, Europe (including Spain) and Middle East, a 3.5% prevalence of ADHD (range: 1.2–7.3%) was calculated using mental health surveys of the WHO and a retrospective evaluation of ADHD in childhood based on DSM-IV criteria.<sup>21</sup>

Adult ADHD was significantly associated to the presence of disability, including morbidity (odds ratio [OR] = 2.2, 95% CI 1.6–

**Table 3** | Results of the self-administered questionnaire of the pediatricians, and relationship to their attitudes towards ADHD (secondary objective of the study)

	n	%
Question 1. Predisposition to verify the presence of ADHD in the patient's <sup>a</sup>		
A. I verify the presence of ADHD and all children >6 years	78	7%
B. I only search for ADHD when the symptoms reported suggest its presence	304	27%
C. I search for ADHD when I consider that it is likely, even when the visit is due to symptoms not related with it	729	64%
D. I have no defined criteria regarding screening for ADHD	41	4%
E. I never verify the presence of ADHD	31	3%
This question was not answered	27	
Question 2. Do you treat ADHD with drugs?		
Always	198	17%
Almost always	352	30%
Sometimes	342	29%
Almost never	130	11%
Never	138	12%
This question was not answered	9	
Question 3. How often do you refer patients with ADHD?		
Always	362	31%
Almost always	459	39%
Sometimes	281	24%
Almost never	57	5%
Never	8	<1%
This question was not answered	2	
Question 4. If you refer the patients, to what specialists? <sup>b</sup>		
Pediatricians who refer cases	1,158	99%
Child psychiatry	783	68%
Neuropediatrician	518	45%
Others (including psychologists and infant-child mental health care centers)	160	14%
Question 5. Do you think you have adequate information regarding the clinical treatment of a child with ADHD?		
Yes	682	59%
No	471	41%

<sup>a</sup>42 pediatricians marked two options for question 1, 31 marked both options B and C  
<sup>b</sup>282 pediatricians marked more than one option for question 4.

2.9), cognitive disability (OR = 3.9, 95% CI 2.8-5.4), high risk of sick leave days (OR = 2.6, 95% CI 2.0-3.5%) and disability in social functioning (OR = 3.1, 95% CI 2.1-4.5).<sup>21</sup> In fact, later in life, those who have ADHD tend to have worse jobs, fewer social relations and it is more likely that they violate the traffic laws.<sup>4</sup> For this reason, the diagnosis of ADHD during childhood, something that is facilitated by the SNAP-IV questionnaire could

also reduce the incidence of ADHD of the undiagnosed adult and its consequences.

An important limitation of the present study is that the final diagnosis of pediatric ADHD was not confirmed since the patients were not evaluated using a structured or semistructured interview. Therefore, the predictive value of the SNAP-IV

questionnaire is only related with the clinical global impression of the pediatricians on the presence of ADHD. Although the use of the clinical global impression method has not been specifically validated for the ADHD, the average clinical experience of 20 years of the 1169 pediatricians who participated in the CONCOR study provides peace of mind concerning the correctness of the clinical impression of presence/absence of ADHD. Furthermore, as the analyses were restricted to data provided by this cross-sectional group of pediatricians who were sufficiently motivated to participate in the study and who filled out the required documentation, we believe that the findings are valuable, although other studies should be made to replicate them.

## CONCLUSIONS

In conclusion, we can point out that ADHD is a complex disorder that is difficult to diagnose and to treat in the daily practice of the pediatrician given the limited time available. Added to these diagnostic difficulties is the existence of two groups of diagnostic criteria that differ in regards to nomenclature and requirements to establish a positive diagnoses. Furthermore, the application of the DMS or ICD criteria is complicated and requires much time, which may limit their use as routine diagnostic procedures. This seems to be the case, since only 7% of pediatricians participating in the study indicated that they commonly studied for the presence of ADHD in all children over six years of age. Pediatricians tend to be the first step in the process of treatment of the patient. Any change in the procedure, such as asking the parent/guardian of the child to fill out the SNAP-IV questionnaire prior to the medical visit, which would help them to make the decision to treat or refer the patient with ADHD to the child psychiatrist or neuropsychiatrist, would not only accelerate the care process, this being important for the quality of life and development of the child, but would also free up their time for other more difficult cases.

The SNAP-IV screening questionnaire effectively detected Spanish children who had low potential to have ADHD. It shows good concordance with the clinical impression of the pediatricians in regards to presence/absence of ADHD following DSM-IV criteria. The availability of this diagnostic tool may help the pediatrician to identify children with ADHD early. This, in turn, would make it possible to initiate treatment at earlier ages and would help improve the functioning and quality of life of these patients and their family, avoiding the additional morbidity associated as the children become adolescents and adults.

According to the self-administered questionnaire that the participating pediatricians filled out, it seems that there is a need for more information regarding drug treatment of ADHD, clear guidelines for the management of the disease and faster screening tests and tests for earlier detection. Identification of these training needs would provide a great opportunity to include the management of ADHD within the continuing education programs of the pediatricians.

## CONFLICT OF INTERESTS

This study was funded by Janssen-Cilag, S.A. The authors of this work have no commercial or financial interest to disclose in relation to this manuscript.

## ACKNOWLEDGMENTS

The authors would like to acknowledge the editorial help given by Pablo Pons and the Content Ed Net, as well as Iván Bernardo and Elena Zubillaga of the medical department of Janssen.

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