



Research article

Self and hetero-perception and discrimination in Attention Deficit Hyperactivity Disorder

David Pérez-Jorge^{a,*}, Atteneri Pérez-Martín^b, María del Carmen Rodríguez-Jiménez^a, Fernando Barragán-Medero^a, Atteneri Hernández-Torres^b^a Department of Didactics and Educational Research, Faculty of Education, University of La Laguna, Spain^b Cognitive Memory Unit, Spain

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ABSTRACT

This study intends to show the external perception that Primary Education students have of their schoolmates with Attention Deficit Hyperactivity Disorder (ADHD) and the perception of the student who has been diagnosed with ADHD himself/herself in order to analyse the differences between both perceptions. For that purpose, a questionnaire was elaborated ad hoc, and the main results shown point to the fact that the external perception of the Primary Education student is more positive than the perception of the diagnosed student. Moreover, the perception of the schoolmates of students diagnosed with ADHD tends to worsen in superior courses.

This discovery invites us to reflect on and understand the more frequent attitudes and behaviours that develop in interaction situations as well as investigate those conducts related to social prejudice associated to their clinical characteristics and prevalent symptoms (attention deficit, hyperactivity and impulsivity), which develop an increase of the negative perception towards the student with ADHD.

1. Introduction

One of the fundamental principles of attention to diversity is inclusive education in the classroom. In contrast to the segregation model (Abellán, 2013; Arnaiz, 2004; Barrio de la Puente, 2009; Echeita and Ainscow, 2011; Escudero, 2012; Pérez-Jorge, 2010; Araque and Barrio, 2010; Garzón et al., 2016; Strydom and Fourie, 2018), inclusive education seeks to provide quality education to all students through equal opportunities and an approach designed to create a level playing field for student expectations and improve outcomes (Araque and Barrio, 2010; Magyar et al., 2020). Inclusion must make the right to an equitable, high-quality education a reality for all students, giving priority to those who are at risk of exclusion, so that they can become active, participatory, critical and public-spirited citizens (López, 2011). As Jiménez (2010, p.15) stated, “integration is a way of understanding difference, inclusion is a way of understanding equality”.

Inclusion has to extend to the social sphere if it is to favour the development of real inclusion processes: the social sphere must complement the school sphere (Escarbajal et al., 2012). The idea is to legitimise diversity through an education directed not only at school-children, but also at the wider public, which makes them understand

that diversity needs to be understood as a value and not as a handicap or difficulty.

Currently, the inclusive school is still seen as a utopia. There are many issues – such as improving the educational response of students, the need to change the therapeutic intervention model for one that does not exclude or segregate, collaboration between professionals and educational institutions and services, the lack of socially and culturally contextualised projects in schools, and a disregard for the testimony of excluded children leading to a failure to adapt the education to their reality and needs – that make inclusion more akin to a declaration of intentions than to a reality (Parrilla, 2007; Pérez-Jorge, 2010). Estévez (2015) contended that if schools are to be truly inclusive, they need to be reinvented. This will require: a) a change in the mentality and attitude of all the members of the educational community; b) contextualised action; c) a rethinking of the curriculum based on the “Universal Design of Learning” (UDL) with adapted proposals that are accessible to students; d) open and functional flexible organisational approaches; e) teacher training based on a culture of collaboration and learning from practice; f) democratic, shared leadership enabling the development of strategies geared towards the creation of inclusive schools. These schools should promote

* Corresponding author.

E-mail address: djorge@ull.edu.es (D. Pérez-Jorge).

the acceptance and adequate perception of disabilities in order to build a real image of students that avoids bias and discrimination.

2. Conceptualisation of attitudes

At present, attitudes – especially towards people with special educational needs – continue to receive the greatest attention from academics, because of their importance for improving expectations for inclusion and their proven relationship with improved teaching-learning processes, educational inclusion and educational response.

Drawing on [Rodríguez \(1989\)](#) and [Pérez-Jorge \(2010\)](#), attitudes are characterised by the orientation of a behaviour towards concrete realities (people, objects and situations) and by their non-innate character, since they are learned. [Pérez-Jorge et al. \(2017\)](#) argued that attitudes help us to understand our environment through the construction of opinions forged from facts and our own experiences and that they can affect the self-esteem of people with functional diversity, causing isolation and the avoidance of social relationships as a mechanism of self-defence. They can also lead to acceptance or rejection, depending on the nature of the relationship experiences.

To understand attitudes towards people with functional diversity, we must first be able to identify the essential dimensions of those attitudes and the factors that play a part in their establishment and consolidation. [Oskamp \(2016\)](#), [Parales-Quenza and Vizcaíno-Gutiérrez \(2007\)](#), [Pérez-Jorge et al. \(2017\)](#), [Piedra \(2016\)](#), [González and Cortés \(2016\)](#), and [Parra and Rojas \(2017\)](#) postulated that direct personal experience and continued exposure to people or situations determine behaviour and consolidate attitudes, be they negative or positive. They also considered that the influence of groups – the family, the peer group – is decisive in the formation of attitudes. In order to realign attitudes towards inclusion, it has become necessary to consider their underlying aspects as outlined by [Pérez-Jorge \(2010\)](#) and [Luque et al. \(2017\)](#), in reference to the following dimensions: a) *cognitive*, “the knowledge, beliefs and opinions concerning an object or situation that influence the way that the subject acts” ([Pérez-Jorge, 2010](#), p.144), b) *conative*, referring to the unconscious proactivity exhibited in the behaviour itself, so “if our thoughts are positive, our response will be one of acceptance, but if they are negative, there will be rejection” ([Pérez-Jorge, 2010](#), p.146); and c) *affective*, referring to the activation of feelings or sensations, “generally, all ideas concerning the specific particularities of objects or social groups are associated with some kind of affective value” ([Pérez-Jorge, 2010](#), p.147).

3. Attitudes towards ADHD at school

Most studies on attitudes towards ADHD in educational settings have centred on the figure of the teacher; there is, therefore, a gap in the studies on student attitudes towards ADHD. However, some of the most relevant findings in the research on attitudes of students towards functional diversity in general ([Pérez-Jorge, 2010](#); [Pérez-Jorge et al., 2016](#); [García et al., 2016](#); [Sánchez, 2017](#); [Parra and Rojas, 2017](#); [Gómez, 2017](#); [Strydom and Fourie, 2018](#)), and that we consider applicable to the case of students with ADHD, maintain that attitudes towards people with functional diversity vary according to the type of deficit or disorder, and socio-economic, cultural and geographical variables. Moreover, contact and positive interaction with students with functional diversity is a determining factor in the acquisition of interpersonal relationship skills and the generation of expectations and attitudes of acceptance and respect.

Focusing on attitudes towards ADHD, it should be noted that most studies suggest that teachers are the main mediators in the development of positive attitudes – both their own and those of the rest of the students – towards the disorder. The teaching staff are therefore one of the cornerstones in promoting the inclusion of students with ADHD ([Sisto and Arena, 2016](#)). It is often the case that the low expectations of teachers towards children with ADHD hinder the development of positive attitudes towards these students. It would be desirable to have a “positive

attitude to tackling the educational and behavioural problems of the student, basic knowledge about ADHD, collaboration with teachers from the team and the school, support and coordination with parents, etc.” ([Vallés, 2006](#), p.251), since “the effort made by the teacher for children with ADHD will lead to improvements in the quality of the education offered” (p.253).

Students with ADHD need to have a closer relationship with their teacher, a more inclusive education and an informed understanding of their difficulties in learning and in relating to their environment. They tend to have many things in common with the rest of the students, but the fact of the matter is that we need to be aware that they possess myriad traits that endow them with their own entity ([González, 2013](#); [Sisto and Arena, 2016](#); [España, 2016](#)). In the school context it is extremely difficult for students with ADHD to inhibit certain behaviours ([Barkley, 2002](#); [Pacheco Herrera, 2016](#); [Hidalgo Alcántara, 2016](#); [Cardona and Varela Cifuentes, 2017](#)). It therefore becomes necessary to raise awareness of the disorder, to generate positive attitudes towards it and prevent their behaviour from being interpreted as rudeness or a lack of interest in learning, or even as disruptive ([Hernández, 2012](#)).

It is essential that teachers accept responsibility for offering an adequate educational response to students with ADHD, adapting the teaching-learning process to their needs, and maintaining a positive attitude towards the disorder in general and the students who suffer from it in particular. In order to promote the educational inclusion of students with ADHD, [Estévez \(2015\)](#) proposed a strategic improvement plan that includes a change of attitudes among the teaching staff as well as other relevant aspects, such as a reduction of methodological barriers, an adaptation of the teaching processes, more flexible organisation to adapt to the needs of students with ADHD, and the development of an inclusive educational project based on the specific support needs of students with ADHD.

[Rossel \(2015\)](#) stated that ignorance of the disorder and an inappropriate attitude towards it can greatly affect the self-esteem of these students, thus hindering their overall development and even affecting their school performance. She also highlighted the importance of preventive work based on the development of positive attitudes, amongst both teachers and the students' peers, to significantly reduce the risks arising from ignorance of the disorder and therefore the attitudes of rejection that might arise.

Most studies on the self-concept of students with ADHD conclude that they have low self-esteem because of the stigma attached to them and the development of negative attitudes in the school environment ([Bakker and Rubiales, 2012](#)). [García and Hernández \(2010\)](#) argued that children with ADHD have lower levels of self-esteem and motivation. However, when studying the self-concept of students with ADHD from a multidimensional approach, [Bakker and Rubiales \(2012\)](#), concluded that, in general, students with ADHD have an average self-concept: high in the social, family and physical dimensions, and lower in the emotional and academic dimensions.

Bearing in mind all that has been discussed thus far, we would stress the fact that an understanding of the self-concept of school children with ADHD is key to bolstering their social and educational adaptation by strengthening their self-esteem. Comparing this self-concept with their peers' external perception of the disorder will enable us to better and more accurately target educational practice to generate positive attitudes towards ADHD, thus promoting the educational and social inclusion of these students.

4. Objectives of the study

Two specific situations determined by the nature of the sample were considered:

a) Study I (primary education students' external perception of students with ADHD); b) Study II (self-perception of students with ADHD). The following objectives were established for the two studies:

- To enquire into the knowledge, beliefs and opinions about ADHD amongst both students with ADHD and their peers.
- To understand the most common conduct and behaviours exhibited in interaction situations, as perceived by the students with ADHD (self-perception) and by their peers (external perception).
- To understand the most common feelings or sensations that the behaviour of students with ADHD produces in their peers (external perception) and in the students themselves (self-perception).

The answers given by the students with ADHD and their peers were analysed in order to compare the self-perception of students with ADHD with the external perception of their peers. The perception of and disposition towards interaction were assessed to determine the differences in perceptions related to the degree of knowledge about the disorder, the behaviours exhibited in the interaction and the most common feelings produced by the disorder.

This research was approved by the ethics committee of the University of La Laguna (CEIBA) with reference CEIBA 2018-0328.

5. Participants

The sample was selected from the total of students with ADHD who were attended at the COGNITIVA UNIDAD DE MEMORIA center, this center attends to 70% of the cases of students with ADHD who attend educational centers in the south of the island of Tenerife. Of the total of 42 children with ADHD with a differentiated diagnosis, 39 participated, representing 92.8% of the students with this disorder treated at the center. This center was used because all the children had been diagnosed by its professionals, with the same tests and criteria. Access to the center's sample facilitated the management of authorizations and permits for families and educational centres in which these students were enrolled. The sample of students without ADHD was made up of the schoolmates of the students with ADHD who participated in the study.

The sample comprised 310 primary and secondary education students from different schools in which students had been diagnosed with ADHD. Given the nature of the study, both the students with ADHD and their peers were counted. We obtained informed written consent from the parents/guardians of the participants.

Students with ADHD accounted for 12.6% of the total sample and students without ADHD accounted for 87.4%. The students were enrolled in 12 state schools located in the south and in the metropolitan area of Tenerife and attended 3rd (8 years) to 6th (11 years) grade of primary education (22.3% in grade 3, 5.2% in grade 4, 25.2% in grade 5 and 47.4% in grade 6); the average age of the sample was 10.53 years. 51% were boys and 49% were girls. See Table 1 for a more detailed description of the sample:

Table 1. Sample profile.

		Total sample		Group 1 (Students with ADHD)		Group 2 (Students without ADHD)	
		N	%	N	%	N	%
Total sample		310	100	39	12.6	271	87.4
Gender	Male	158	51	12	7.6	146	92.4
	Female	152	49	27	17.8	125	82.2
Age	8 years	21	6.8	0	0	21	6.8
	9 years	61	19.7	2	3.3	59	96.7
	10 years	54	17.4	2	3.7	52	96.3
	11 years	83	26.8	8	9.6	75	90.4
	12 years	87	28.1	25	28.7	62	71.3
	13 years	4	1.3	2	5.0	2	5.0
Grade	Grade 3 (8 years)	69	22.3	3	4.3	95.7	24.4
	Grade 4 (9 years)	16	5.2	1	6.3	15	93.8
	Grade 5 (10–11 years)	78	25.2	1	1.3	77	98.7
	Grade 6 (11–13 years)	147	47.4	34	23.1	113	76.9

By way of summary, focusing on the diagnostic profile of the students (with and without ADHD), Figure 1 shows the distribution according to the other independent variables in this study.

In relation to the specific group of students with ADHD, we considered it necessary to include a brief description of the general characteristics of the study participants to make it easier to interpret the results (see Table 2).

6. Tools

The data for this study were gathered through an ad-hoc questionnaire. These questionnaire were based on different internationally validated instruments, such as the Behaviour Assessment System for Children (Reynolds and Kamphus, 1992) and the Conners Scale (Conners, 1989), created specifically to assess symptoms and behaviours associated with ADHD. Other questionnaire used in various studies related mainly to attitudes towards functional diversity (Pérez-Jorge, 2010), and specifically towards ADHD (Estévez, 2015; Rosset, 2015), were also consulted. See Table 3 for the list of tools and consulted sources.

6.1. Questionnaire on primary education students' external perception of students with ADHD (CPEAP) and self-perception of students with ADHD (CAATDAH)

The external perception questionnaire (CPEAP) was designed to assess primary education students' perception of ADHD. Due to the complexity of the object of study and to avoid social desirability bias, and any kind of mockery or allusions towards their peers with ADHD, a situational questionnaire was drawn up in the form of a Likert scale. The questionnaire began with a description of the school experience of a student with ADHD, and having analysed the situation described, students were asked to assess a series of statements related to perception, expectations and attitudes towards students with ADHD. Since it was a Likert scale, students were asked to indicate their level of agreement with each of the statements on a scale of 1–6 (1 being the lowest value and 6 the highest). In addition, the questionnaire included demographic data (gender, age and school year) to complete the description of the sample.

The CAATDAH questionnaire was used to assess the self-perception of students with ADHD. This questionnaire was based on the CPEAP questionnaire, adapting the items and their wording: they were written in the first person in order to enable students with ADHD to better assess themselves (self-perception). The same procedure was followed as for the previous questionnaire and the opening description was eliminated.

Both questionnaires were drawn up in line with the analysis and substantiation proposals of Reynolds and Kamphus (1992) and Conners (1989), and the behaviour and attitudes analysis proposals of Pérez-Jorge

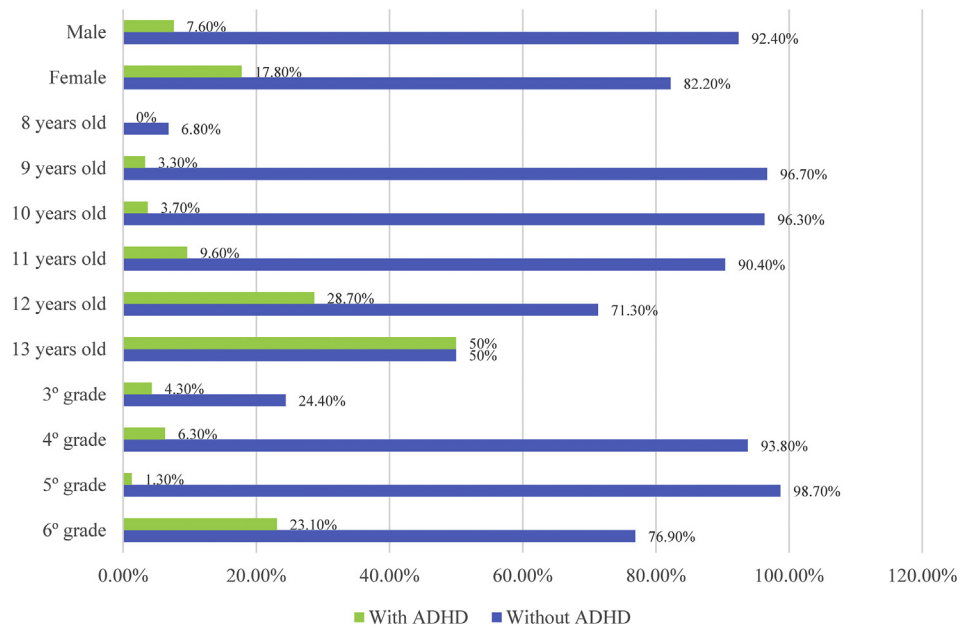


Figure 1. Distribution of the sample according to independent variables.

Table 2. Description of ADHD cases.

No. Students	Gender	Age	Grade	School	Description of cases
3	M	11	6	1	Students diagnosed with predominantly inattentive ADHD in grade 5 by the EOEP (psychopedagogical units) for that zone: lack of focus and attention. Do not receive pharmacological treatment. Behaviour is good. Other factors of interest: insecure attachment.
9	M	12	6	2	Students diagnosed with predominantly inattentive ADHD in grade 5 by the USM ¹ : lack of focus and attention. They receive pharmacological treatment, presenting significant improvements. Behaviour is good. Low educational performance.
6	F	9	3	3	Students diagnosed with predominantly inattentive ADHD in grade 2 by the USM: lack of focus and attention with periodic episodes of hyperactivity. They received pharmacological treatment for a year, presenting significant improvements in hyperactivity, but not inattention. Behaviour is good. Slow cognitive processing speed. Other factors of interest: problems socialising and adapting to school.
15	F	9	4	3	Students diagnosed with combined type ADHD in grade 3: lack of focus and attention, a tendency to hyperactivity and impulsivity. They receive pharmacological treatment, presenting significant improvements.
6	F	10	5	4	Students diagnosed with predominantly hyperactive-impulsive ADHD. They receive pharmacological treatment, presenting no significant improvement. They present behavioural problems.

¹ Children's Mental Health Unit.

(2010), Estévez (2015) and Rossel (2015). They were subjected to a content validation process, which was carried out by 4 experts in ADHD and 4 experts in the study and analysis of attitudes. Based on the contributions and comments of these experts, some items were reformulated and adapted, and others were deleted. The final version of the questionnaire comprised a total of 37 assessment items referring to each of the three dimensions considered for this study (see Table 4).

Cronbach's alpha was applied, obtaining a value of 0.89, which allows us to consider that it is an adequate instrument. In addition, an evaluation of its content was carried out, through the judgment of 2 university experts in ADHD, two experts in methodology and 2 primary and secondary school teachers.

7. Data analysis

The nature of the data obtained in this study allowed for a quantitative assessment. Accordingly, the following analyses were carried out:

- Descriptive analysis of the CPEAP/CAATDAH.
- Descriptive analysis of the dimensions of the CPEAP/CAATDAH.
- Comparison of the attitudinal dimensions with the demographic and identifying variables.
- Comparison between the external perceptions of the peers of students with ADHD and the self-perception of students with ADHD.

Table 3. List of tools and sources consulted to prepare them.

QUESTIONNAIRE	TOOLS
QUESTIONNAIRE I: Questionnaire on Primary Education Students' External Perceptions of Students with ADHD (CPEAP)	1. BASC: Behaviour Assessment System for Children (Reynolds and Kamphus, 1992). 2. Conners Scale (Conners, 1989).
QUESTIONNAIRE II: Questionnaire on Self-perception of Students with ADHD (CAATDAH)	3. Questionnaire on Attitudes Towards Vision Impairment (CADV) (Pérez-Jorge, 2010). 4. Questionnaire on Attitudes Towards Motor Impairment (CADM) (Pérez-Jorge, 2010). 5. Questionnaire to study the organisational and curricular conditions in primary education classrooms to respond to the educational needs of the students (Estévez, 2015). 6. Knowledge and attitudes of primary school teachers regarding attention deficit hyperactivity disorder (ADHD) (Rossel, 2015).

Table 4. List of items and dimensions.

DIMENSION	ITEMS
Cognitive Refers to knowledge, beliefs and opinions about ADHD in situations of interaction (CPEAP) or self-perception (CAATDAH)	5,7,12,14,15,16,17,20,21,22,25,28,32,33,35
Conative Refers to the most common behaviours and actions developed in situations of interaction as perceived by peers (CPEAP) or self-perceived (CAATDAH)	1,2,3,4,8,9,11,19,29,34,36,37
Affective Refers to the items concerning the most common feelings or sensations that the behaviour of students with ADHD produce in their peers (CPEAP) or their self-perception thereof (CAATDAH).	6,10,13,18,23,24,26,30,31

8. Findings

8.1. Descriptive analysis of the dimensions of the CPEAP and CAATDAH

For this point we have prepared a table summarising the descriptive statistics for the answers given by the peers of the students with ADHD and of the students with ADHD for each item and factor (see Table 5).

8.2. Analysis of the differences between the opinions of peers of students with ADHD (CPEAP) and the opinions of students with ADHD (CAATDAH) based on demographic variables

For this analysis, parametric hypothesis tests were used: the independent samples Student's *t*-test for variables with two response levels (gender), and for those variables with more than two levels (grade), the one-way ANOVA test.

8.2.1. Differences by gender

According to the results drawn from the CPEAP – students' external perceptions of students with ADHD (see Table 6) – there are significant differences by gender with regard to their perceptions of the conduct and behaviour of the student with ADHD (F2) and the feelings towards and relationship with the student with ADHD (F3). The boys seem to have a better perception of the conduct and behaviour of students with ADHD ($\bar{x}=4.13$) than the girls, who had a lower average ($\bar{x}=3.83$). However, the girls had a better predisposition towards their relationship with students with ADHD and expressed more positive feelings towards them ($\bar{x}=3.94$) than the boys ($\bar{x}=3.64$).

With regard to the self-perception of students with ADHD (CAATDAH), differences were observed for all three factors (Table 7). The boys had a greater knowledge of the disorder and a more positive (F1) attitude towards themselves ($\bar{x}=3.84$) than the girls. In relation to F2, the boys ($\bar{x}=2.81$) perceived their conduct and behaviour more positively than the girls ($\bar{x}=2.42$). However, the girls diagnosed with ADHD had more positive feelings towards themselves and a better perception of their relationships with their peers (F3) ($\bar{x}=4.70$) than the boys.

8.2.2. Differences by grade

Regarding knowledge of and attitude towards students with ADHD (F1), third-grade students had a better knowledge and attitude than the other grades, with a higher average ($\bar{x}=4.08$). The lower the grade, the greater the knowledge and the better the attitude towards students with ADHD, with the exception of the last two grades, where the trend is reversed with sixth-grade students having a higher average ($\bar{x}=3.68$).

In relation to perceptions of the conduct and behaviour of students with ADHD (F2), differences were also found: third-grade students had the most positive perception ($\bar{x}=5.16$), followed by grades five ($\bar{x}=4.18$), four ($\bar{x}=3.69$) and six ($\bar{x}=3.35$).

There were significant differences in the feelings towards and relationships with students with ADHD (F3). Again, third-grade students ($\bar{x}=4.86$) showed more positive feelings and better relationships with students with ADHD than the students from the other grades (See Table 7).

Regarding self-perception by grade, it is worth noting that differences were only found in knowledge of and attitude towards students with ADHD (F1) (see Table 8). Fifth-graders had the best self-perception of their knowledge of the disorder and the attitudes they show towards themselves ($\bar{x}=4.22$), followed by grades four ($\bar{x}=3.73$) and three ($\bar{x}=2.91$). In general, self-perception of the knowledge and attitudes shown towards themselves improves with the years.

8.3. Analysis of the differences between the opinions of peers of students with ADHD (CPEAP) and the students with ADHD (CAATDAH)

Regarding the differences between groups as to the opinions in the CPEAP and the CAATDAH, significant differences were shown in the self-perception of the students with ADHD and their peers' external perception of them in (F2) and (F3). Students without ADHD ($\bar{x}=4.19$) assessed the conduct and behaviour of students with ADHD more positively than students with ADHD. However, students with ADHD ($\bar{x}=4.50$) gave a more positive assessment of the feelings generated by the disorder in themselves and the quality of the relationships they have with the rest of their peers. In general terms, it was observed that the external

Table 5. Descriptive statistics of CPEAP and CAATDAH by item and factor.

	Average (\bar{x}) ¹	SD	Average (\bar{x}) ²	SD
14. I feel respected by him/her	3.82	2.12	5.68	0.52
12. Other classmates hit him/her and he/she deserves it for not keeping still	5.27	1.40	5.73	1.13
32. He/she breaks class rules on purpose to get attention	2.95	2.01	1.29	1.04
5. I stop him/her from playing alone	3.70	2.05	5.68	1.16
21. I know how to relate to him/her	4.00	1.93	5.79	0.91
25. I am patient and help them with their assignments	3.31	1.83	3.11	1.50
7. He/she blames others when he/she does things wrong	3.25	1.98	1.29	1.04
35. He/she is organised and finds it easy to be so	4.62	1.49	2.66	0.85
17. He/she is competitive with other children and that is why nobody wants to play with him/her	2.78	1.86	1.18	0.83
20. I know how to calm him/her down when he/she is nervous	2.96	1.74	4.68	1.87
22. He/she is as intelligent as the rest of the children	3.73	1.80	4.00	1.39
16. I feel that some classmates laugh at him/her	3.05	1.98	1.18	0.69
15. He/she ignores me because he/she does not listen when I speak to him/her	2.73	1.65	1.32	0.47
33. He/she should be in another class with children like him/her	4.54	1.75	5.47	1.16
28. I feel nervous when he/she helps me with assignments	4.90	1.65	5.74	1.13
Knowledge and attitude concerning the student with ADHD (F1)	3.71	0.50	3.62	0.45
29. I help him/her relate to others	3.50	1.88	3.71	0.73
36. He/she does his/her assignments badly because he/she does not follow the instructions	3.54	1.89	1.32	0.53
1. He/she is easily distracted	4.68	1.46	3.63	0.63
34. He/she usually gets worse grades because he/she does not pay attention in class or exams	3.85	1.91	1.47	0.83
37. He/she rushes his/her assignments and exams and never finishes them	3.83	1.83	1.97	1.38
3. He/she won't stop talking	4.24	1.72	2.66	0.67
4. He/she tends to forget things	4.08	1.58	3.66	0.48
11. He/she has few friends because he/she is a bother and an irritation to others	3.34	1.96	1.11	0.39
2. He/she is restless	4.70	1.59	2.45	2.50
19. He/she has difficulty concentrating when doing assignments	4.44	1.54	2.79	1.17
9. I try to make him/her think because he/she acts impulsively and without thinking things through	3.46	1.98	1.3421	1.18
8. He/she is very curious	4.09	1.58	4.18	1.31
Conduct and behaviour of the student with ADHD (F2)	3.98	1.03	2.54	0.41
23. I feel happy to be in the same class as him/her	3.64	2.03	5.53	1.06
10. I feel safe when I play with him/her	3.52	1.93	5.47	0.98
24. He/she feels misunderstood because he/she is told off very often	3.59	1.59	2.68	0.66
6. I try to make him/her feel like one more in the class	4.35	1.74	5.53	0.98
30. I feel that he/she draws attention to him/herself when we are doing class assignments	2.85	1.82	5.61	1.37
13. He/she feels sad when the teacher punishes him/her	3.75	1.95	1.90	0.31
31. I feel that he/she makes fun of us in class	4.40	1.81	5.82	0.65
18. I know that he/she needs to receive more attention from the teachers because of his/her difficulties	4.07	1.79	2.92	1.05
26. I feel nervous when he/she does not keep still in class	3.92	1.80	5.39	1.20
Feelings about and relationship with the student with ADHD (F3)	3.79	1.08	4.50	0.61

Descriptive statistics of Students' External Perception of Students with ADHD (CPEAP) and Self-perception of Students with ADHD (CAATDAH).

¹ Average and standard deviation from the CPEAP.

² Average and standard deviation from the CAATDAH.

Table 6. Differences in opinions expressed in the CPEAP according to gender.

	DIFFERENCES BY GENDER OF CPEAP FACTORS FOR PEERS OF ADHD STUDENTS			DIFFERENCES BY GENDER OF CAATDAH FACTORS FOR ADHD STUDENTS			
	t-test			t-test			
	p	\bar{x} (SD)	N	Levels	N	\bar{x} (SD)	p
KNOWLEDGE AND ATTITUDE CONCERNING THE STUDENT WITH ADHD (F1)				Boy	12	3.84 (0.47)	<.001
				Girl	27	3.53 (0.41)	
CONDUCT AND BEHAVIOUR OF THE STUDENT WITH ADHD (F2)	0.011	4.13 (0.94)	158	Boy	12	2.81 (0.55)	<.001
				Girl	27	2.42 (0.27)	
FEELINGS ABOUT AND RELATIONSHIP WITH THE STUDENT WITH ADHD (F3)	0.014	3.64 (1.08)	158	Boy	12	4.06 (0.56)	<.001
				Girl	27	4.70 (0.53)	

Differences in opinions according to gender.

Table 7. Differences in opinions expressed in the CPEAP according to grade.

	DIFFERENCES BY GRADE OF CPEAP FACTORS FOR PEERS OF ADHD STUDENTS						DIFFERENCES BY GRADE OF CAATDAH FACTORS FOR ADHD STUDENTS				
	F	gl	p	\bar{x} (SD)	N	Levels	F	gl	N	\bar{x} (SD)	p
KNOWLEDGE AND ATTITUDE CONCERNING THE STUDENT WITH ADHD (F1)	23,33	306	<.001	4.07 (0.45)	67	Third-Fourth	11,471	38	5	2.91 (0.69)	<.001
				3.63 (0.59)	16				3	3.73 (0.12)	
				4.07 (0.45)	67	Third-Fifth			5	2.90 (0.69)	
				3.45 (0.53)	77				3	4.22 (0.96)	
				4.07 (0.45)	67	Third-Sixth			5	2.91 (0.69)	
3.68 (0.39)	147		28	3.67 (0.02)							
BEHAVIOUR OF THE STUDENT WITH ADHD (F2)	94,93	306	<.001	5.16 (0.57)	68	Third-Fourth					
				3.69 (0.96)	14						
				5.16 (0.12)	68	Third-Fifth					
				4.18 (0.73)	78						
				5.16 (0.12)	68	Third-Sixth					
3,35 (0.78)	147										
FEELINGS ABOUT AND RELATIONSHIP WITH THE STUDENT WITH ADHD (F3)	172,26	307	<.001	4.86 (0.55)	68	Third-Sixth					
				3.96 (0.79)	147						
				4.10 (0.79)	15	Fourth-Fifth					
				2.45 (0.41)	78						
				2.45 (0.41)	78	Fifth-Sixth					

perceptions of peers were more positive than the self-perception of students with ADHD (see Table 8).

9. Discussion

In this section we will try to link the main results of our study with other relevant findings obtained in previous studies. With regard to the opinions of the peers of students with ADHD (CPEAP), the main findings show that boys tend to have a better perception of the conduct and behaviour of students with ADHD; in line with Hernández (2012), greater awareness of this disorder is required to generate positive attitudes towards it and to avoid misinterpreting conduct and behaviour.

Girls had a greater predisposition towards their relationship with students with ADHD and expressed more positive feelings towards them. In keeping with Pérez-Jorge (2010) it seems that girls are more aware and show a better predisposition towards interactions with students with functional diversity, in this case, students with ADHD.

The students from lower grades demonstrated better knowledge of and attitude towards the disorder, which decreased the higher the grade. The same occurred with the perception of the conduct and behaviour of students with ADHD, which was more positive in the lower grades. In addition, the students from the lower grades also showed more positive feelings and a better disposition towards their relationship with the students with ADHD than the students from higher grades. In general terms, the students from the lower grades showed a much more positive general perception of the students with ADHD, which worsened as the children got older. It seems that mere contact does not guarantee a positive disposition towards and perception of people with ADHD, as in this case. It would appear that contact with people with functional

diversity generates positive expectations towards them amongst their peers and favours their adaptation to the school, but it is not the only aspect that determines expectations (Díaz-Aguado, 1986; Kupersmidt and Coie, 1990; Ladd, 1990; Parker and Asher, 1987; Pérez-Jorge, 2010). The outcomes of this study lead us to conclude that as the contact between students with ADHD and their peers increases, prejudices towards the disorder and more negative expectations are generated, which may lead to problems of school maladjustment for the students with ADHD (Miranda et al., 2011; Sarason, 2006; Sánchez et al., 2011). This finding supports the postulates of Alegre et al. (2002), who affirmed that contact between people with and without functional diversity does not guarantee positive attitudes and a greater degree of acceptance, given that having an erroneous or prejudiced conception of people with functional diversity influences a predisposition to reject them. We agree with Casajús (2011) and Barkley (2002) that the main explanation could be based on the fact that, as the children get older, the demands of the school environment are greater and the students with ADHD cannot adapt to them, generating negative expectations about the disorder in their classmates and teachers. It is the responsibility of the school in general and teachers in particular to be sensitive to the educational needs of students with ADHD and ensure their success through the use of appropriate strategies (Estévez and León, 2015). In addition, it is essential to develop positive attitudes towards these students; as argued by Alegre et al. (2002), Alegre and Pérez-Jorge (2006) and Martínez (2011), the attitudes and predisposition towards contact and positive interaction with people with functional diversity will determine educational expectations and their real possibilities for inclusion. Attitudes are not innate to the child but are learned, and have a strong emotional component (Oskamp, 2016; Rodríguez, 1989). As students progress through the school years, the

Table 8. Difference in opinions expressed in the CPEAP (external perception) and CAATDAH (self-perception).

	F	gl	Levels	t-test		
				N	\bar{x} (Sd)	p
CONDUCT AND BEHAVIOUR OF THE STUDENT WITH ADHD (F2)	29,856	104	ADHD	39	2.54 (0.41)	<.001
			Without ADHD	268	4.19 (0.91)	
FEELINGS ABOUT AND RELATIONSHIP WITH THE STUDENT WITH ADHD (F3)	23,845	78	ADHD	39	4.50 (0.61)	<.001
			Without ADHD	269	3.68 (1.09)	

negative perception increases, and the attitudes shown towards students with ADHD by their peers worsen because they are subjected to social conditioning, which encourages their predominantly negative attitudes towards the disorder.

As indicated by Pérez-Jorge (2010, Pérez-Jorge et al. 2017), attitudes can fulfil various functions, amongst which we would like to highlight the *defensive* and *adjustment* functions. It is essential to develop positive attitudes towards students with ADHD, since attitudes may affect the self-esteem of students with ADHD. They may lead to their isolation and the avoidance of social relationships as a self-defence mechanism (*defensive function*); or they may lead their peers to accept or reject them depending on the type of experiences in their relationships and interactions (*adjustment function*).

In relation to the self-perception of students with ADHD, we observed that the boys had a greater knowledge of the disorder and a more positive attitude towards it than the girls; boys tend to be more optimistic than girls in the face of adversity. González and Valdéz (2012) considered this to be the result of the greater sensitivity of girls, who tend to have a more pessimistic approach to problems or adversity (González and Valdéz, 2012). However, although there are studies that postulate that resilience correlates significantly and positively with optimism and negatively with pessimism (González and Valdéz, 2012), the fact that girls tend to be more pessimistic does not imply that they are less resilient, since there are other studies that have not found significant differences in levels of resilience based on sex (Prado and Del Águila, 2003).

Conversely, it was shown that the girls with ADHD have more positive feelings towards themselves and better relationships with their classmates than the boys. In relation to this finding, it is important to emphasise that contact and interaction are determining factors for the attainment of interpersonal relationship skills in children with functional diversity (Pérez-Jorge, 2010).

With age, it was observed that students with ADHD better understand the disorder and develop more positive attitudes, have a better self-knowledge of the disorder and its implications. This self-perception is more positive with the passage of time, since as students with ADHD grow and mature, they have better control over the main symptoms (hyperactivity and impulsivity) and stop projecting such a negative image of the disorder. However, an interesting aspect to note is that this positive self-perception of students with ADHD is not motivated by a positive external perception on the part of their peers, since as observed in the previous study, the most positive attitudes were exhibited in the lowest grades as a result of less social conditioning and a lesser influence of social prejudices. Despite this, it is important to bear in mind that the full integration of children with functional diversity, and in particular of students with ADHD, will depend to a large extent on the attitudes shown by peers and teachers. In this sense, there is a fairly widespread conviction about the relationship between the success of inclusion and the promotion of positive attitudes in the educational community (Rillota and Nettelbeck, 2007; Wong et al., 2019).

Students without ADHD view the conduct and behaviour of students with ADHD more positively than students with ADHD. In general, students with ADHD have low self-esteem and low motivation due to the stigma attached to them through the development of negative attitudes in the school environment (Bakker and Rubiales, 2012; García and Hernández, 2010). However, when studying the self-concept of students with ADHD from a multidimensional approach, Bakker and Rubiales (2012), concluded that, in general, students with ADHD have an average self-concept (caused by high self-concept in the social, family and physical dimensions, and medium self-concept in the emotional and academic dimensions) but low self-esteem. This low self-esteem, provoked, according to Rossel (2015), by ignorance of the disorder and an inadequate attitude towards it, generates difficulties in their integral development that can lead to school failure. Rossel (2015) therefore recommended preventive work in the classrooms based on the development of positive attitudes, among both teachers and the students'

peers, to significantly reduce the risks arising from ignorance of the disorder and the prevailing attitudes of rejection.

The students with ADHD typically have a high social self-concept and therefore more positively value their relationships with the rest of the students. Moreover, the students will more positively value the feelings generated by the disorder because, as Pérez-Jorge (2010) noted, children who have the possibility to interact with children with functional diversity in their schools exhibit less rejection than those who do not.

An interesting aspect to note is that there are no significant differences between the two groups with regard to the knowledge of and attitude towards the disorder. Therefore, students with ADHD have the same knowledge of the disorder as students without ADHD. This finding suggests that we reflect and consider negative attitudes from a point of view other than that of ignorance. It invites us to consider that the negative attitudes towards the disorder – a range of social prejudices related to its clinical features and main symptoms (attention deficit, hyperactivity and impulsivity) – are not socially accepted ways of defining the profile of these students.

10. Conclusions

The analysis of the main results extracted from this work and its contrast with other sources has allowed us to draw a number of conclusions:

The external perception towards students with ADHD is fundamentally determined by the behavior of the student with ADHD, and is more positive in the first school years where there is less prejudice towards the disorder (social conditioning). It seems Social conditioning and prejudice towards ADHD generate negative attitudes. Having skills and resources for interaction with students with ADHD encourages the development of positive feelings towards ADHD in primary children, specially in the girls. The girls have more positive feelings towards students with ADHD, encouraging the social self-concept of students with ADHD and a more positive appreciation of their feelings and relationships.

The self-perception of students with ADHD is fundamentally determined by the feelings and relationship with students with ADHD. There is a need to sensitize primary school students to interact positively with students with ADHD in order to promote their self-perception. Girls with ADHD have more interaction skills and resources than boys and the self-knowledge of children with ADHD is more positive in the last years of primary education.

The external perception towards students with ADHD is more positive than the self-perception of students with ADHD due to the existing stigmatization towards the disorder. The negative attitudes towards students with ADHD are not caused by ignorance but by the development of prejudices around the disorder. The primary school students have a better perception of the behaviour of students with ADHD than the latter, which reflects the low self-consciousness of students with ADHD.

In general, It is necessary to improve the relationships between students with ADHD and without ADHD if we want to optimize the inclusion and the real acceptance of this students.

10.1. Strengths and limitations of this study

We are aware of the limitations of this study, due to the limitation of the sample. The results must be taken with the appropriate caution. However, we believe that the results open future lines of action around improving attitudes towards students with ADHD. It is required to extend the study taking broader sample values. We have found no studies comparing self-perception with hetero-perception. This first approach suggests the need to consider mutual perceptions as mechanisms for improving the attitudes of different groups of students with disabilities and their peers.

Declarations

Author contribution statement

D. Pérez-Jorge: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

A. Pérez-Martín: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

M.C. Rodríguez-Jiménez: Performed the experiments; Contributed reagents, materials, analysis tools or data.

F. Barragán-Medero: Analyzed and interpreted the data; Wrote the paper.

A. Hernández-Torres: Performed the experiments; Contributed reagents, materials, analysis tools or data.

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The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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