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Autism Spectrum Disorders: Typology, prevalence and schooling in the province of Almeria (Spain)

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The evolution of the prevalence in the autism spectrum disorders (ASD) is of great importance for decision-making about the prevision of the resources. Similarly, decisions related to these children's schooling always causes uncertainty and concern in the family and the professionals who have to orient them about the type of schooling and resources. The goals of this investigation are to identify the prevalence of the autism spectrum disorder in the school population of the province of Almeria (Spain), as well as to appraise the relation of dependence or independence between the variable type of schooling and the variable disability typology underlying the special educational needs of these students. For this descriptive study, we used the entire school population of Almeria from the academic years 2007/2008 to 2013/2014. The reliability of the data used is supported by the contrast between the existing information in the management of the Andaluza educational administration (Seneca) and the evolution of the population of Almeria by age groups.

Keywords: Autism, autism spectrum disorders, education of the autistic child, prevalence of ASD, ASD educational response.

Trastornos del Espectro Autista: Tipología, prevalencia y escolarización en la provincia de Almería (España). La evolución de la prevalencia en los trastornos del espectro autista (TEA) es de gran importancia para la toma de decisiones acerca de la previsión de los recursos. De igual manera la toma de decisiones relacionada con su escolarización es siempre motivo de incertidumbre y preocupación para la familia y los profesionales que han de orientar acerca del tipo de escolarización y los recursos. Nos hemos planteado como objetivos de esta investigación identificar la prevalencia del trastorno de espectro autista en la población escolar de la provincia de Almería (España), así como valorar la relación de dependencia o independencia entre la variable tipo de escolarización y la variable tipología de la discapacidad que subyace en las necesidades educativas especiales de alumnos y alumnas. Hemos utilizado para este estudio descriptivo la totalidad de la población escolar almeriense desde el año académico 2007/2008 al 2013/2014. La fiabilidad de los datos utilizados está soportada en el contraste entre la información existente en la aplicación de gestión de la administración educativa andaluza (Seneca) y la evolución de la población almeriense por grupos de edad.

Palabras clave: Autismo, trastornos del espectro autista, escolarización del niño autista, prevalencia TEA, respuesta educativa TEA.

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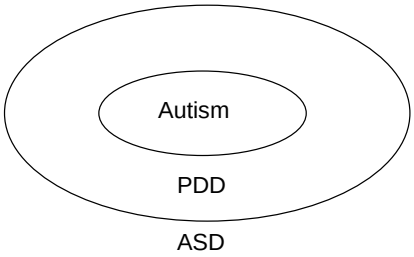
As a kind of terminological approach to this research, we address the conceptualization, diagnosis, types of schooling, and prevalence of autism spectrum disorders (ASD).

Autism was first described by Eugen Bleuler in 1911 (cit. Frith, 1991). It consists of a series of very variable clinical manifestations that serve as a diagnostic basis, and to date, there is no specific biological marker. Wing and Gould (1979) propose the term *autism spectrum disorders* (ASD), given that the symptoms presented by people with this type of disorders are similar to those presented by people with other disorders, either in the case of some specific language disorders or severe developmental disorders.

The behavior of children who present autism is multiform, mainly varying among individuals in three traits or factors: intellectual capacity (Álvarez, 1996), age or evolutionary stage at symptom onset (Rogel-Ortiz, 2005), and suitability-efficiency of learning experiences (Fredericks, Buckley, Baldwin, Moore & Stremel-Campbell, 1983). Therefore, a related system is proposed, which Valdez, Rivière, Martos and Ruggieri (2001), Rivière and Martos (2001, p. 29) and Alonso (2003, p. 171) represent by an inclusion relationship that affects the diverse typologies that can be established along the continuum between autism, pervasive developmental disorder, and ASD.

Figure 1. Relation autism, pervasive developmental disorder, ASD. Martos (2001:29)



This implies differentiating between: (a) children presenting disorders that cannot be considered as pervasive developmental disorders but that present *autistic traits* (for example, a child with severe mental retardation and autistic traits); (b) children presenting pervasive developmental disorders without a specific autism picture, as in the case of childhood disintegrative disorder; and (c) children with a behavioral autism picture (Rivière, 2002). In the words of Alonso (2003, p. 170), the concept of ASD "*attempts to accommodate a group more extensive alterations than pervasive developmental disorder* (…) *in which the same areas are affected but with a different intensity*". Accordingly, the *Diagnostic and Statistical Manual of Mental Disorders-V* (American Psychiatric Association [APA], 2013) proposes the use of the category ASDs,

as it is less restrictive than the *pervasive developmental disorders* of the DSM-IV (APA, 2002). Thereby, "*the inability to establish adequate relations with classmates at the level of development"* considered in the *DSM-IV* (p. 85) is defined in the DSM-V as behavioral difficulties to adapt to different social contexts.

The Andalusian administration establishes a set of actions coordinated by the Public Health System for the detection and early treatment of cases of ASD (Jiménez & Pons, 2010). For this purpose, firstly, the parents are informed and provided with references of the normal evolutionary milestones and warning signs based on the works of Fernández and Álvarez (1989), Fernández, Fuentes and Rueda (1991) and of Iceta and Yoldi (2002). This is carried out through sensitization campaigns and basic formation through the pediatric services, which are specifically trained in the identification of the warning signs of ASD. Faced with a suspected situation, an exhaustive appraisal is carried out as of 18 months using the M-Chat (Robins, Fein & Barton, 1999). If the child is younger than 18 months, the presence of specific warning signs is identified, if the suspicion is confirmed, the children are derived to the next level of care (Early Childhood Care Centers and Childhood and Adolescent Mental Health Unit). In the case of children older than 3 years, a system of detection and coordination with the Public Education System is also carried out by the Educational Orientation Teams, with participation of the professionals from the area of ASDs of the Specialized Educational Orientation Team (Aguirre, Alvarez, Angulo & Prieto, 2008).

There is a consensus in the different administrations about the use of the proposal of the APA (DSM) to establish the diagnostic categories to be used to identify people presenting this type of disorders.

In this regard, we find normative references that establish criteria for the identification of students with "special educational needs due to *pervasive developmental disorder* (Gobierno de Canarias, 2010, p. 32391), characterized by a severe and pervasive impairment of social interaction skills, communication skills, or the presence of stereotyped behaviors, interests, and activities. It specifies the possibility of comorbidity with other disorders (intellectual, sensory, or motor disability, severe behavioral or emotional disorders, as well as socio-cultural problems, inappropriate or insufficient instruction, which cannot be considered a result of the pervasive developmental disorder). When appraising these disorders, the severity of the disorder, especially in the areas of social development, language and communication, anticipation and mental flexibility and symbolization, must be taken into account

The category of pervasive developmental disorders includes Autism disorder, Asperger disorder, Rett disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS). These same diagnostic categories are established in Andalusia to record data in the computer management application of the *Seneca* centers (Junta de Andalucía, 2005, 2012).

The schooling of students with special educational needs aims to provide adequate education as a function of the possibilities and limitations presented, that is, it proposes the adaptation of the schooling to the students' conditions, which requires different types of specialized attention, functional resources, aids, and curricular adaptations, and which are specified in different schooling modalities (Inspección Provincial de Educación, Ciudad Real, 2011).

The normative in the different autonomous communities regulates the diverse types of schooling, ranging on a continuum from a school place in an ordinary center without support, providing variable support, variable support in preferential attention centers (Aragon), in transition units (Navarra), specific classrooms and specialized specific classrooms (Andalucia and Aragon), enclave classrooms (Islas Canarias), specialized open classrooms (Castilla-La Mancha), and alternative classrooms to special education centers in rural areas (Navarra), and specific centers.

In the case of specific units of preschool and primary education centers (Aragon), it is established that "*students between 6 and 12 years with special educational needs derived from pervasive developmental disorders with no associated mental deficiency will be placed in units disposing of their own physical space, where a teacher/tutor specialized in therapeutic pedagogy or in hearing and language and a special education assistant will attend to two to four students"* (Gobierno de Aragón, 2001, p. 7136).

The procedure for the schooling proposal is very similar in all cases. Either due to new schooling, change of educational stage, or change in the student's personal conditions, an ex officio assessment or upon request of a party (educational inspection, school board of directors, family) is performed and reported through schooling decision or report-opinion. The result of this assessment is taken into account for the purposes of schooling and provision of personal and material resources, as well as for specialized interventions to be carried out to address the specific needs of the students (Junta de Andalucía, 2014).

In our case, we have proposed two main types of schooling according to the intensity of the necessary aid and supports and the adaptations to be carried out: ordinary and specific. Ordinary schooling is proposed to be carried out in an ordinary center, following the regular curriculum, either with or without support. Specific schooling would be carried out with the necessary support in the form of a specific and/or specialized classroom within an ordinary center (either preferential or no preferential) or in a special education center. Although the reference curriculum is the ordinary one, it is significantly adapted. In general, the staff per classroom consists of a teacher specialized in therapeutic pedagogy and, in some cases, a special education monitor or assistant.

The ratio per unit varies between 3-5 students (Andalucia), 4-6 (Castilla-La Mancha), and 3-7 (Navarra). In the case of the preferential care centers for students with

ASD (Gobierno de Aragón, 2013), school lines (one classroom per course is equivalent to one school line) will be reserved, with a maximum number of 7 students in the case of one line, and of 14 in the case of two school lines.

Prevalence is defined as the proportion of individuals from a population presenting a certain disorder at a given time or interval. From the review of different studies, the disparity of scores is revealed, suggesting that "*most, if not all of the increase of the incidence and prevalence is due to: (1) Improvements in the early detection processes; (2) Changes in the diagnostic criteria; (3) The existence of more efficacious diagnostic instruments; (4) Sensitization and social awareness, and— why not?— (5) Cultural and environmental factors"* (Fortea, Escandell & Castro, 2013, p. 749).

In this regard, our hypothesis is that, if there have been no specific circumstances to justify it and the diagnostic procedures are efficacious, the variability of the incidence of ASD will be found to be related to the population variability.

We think that the identification of students presenting special educational needs associated with ASD in the province of Almeria has increased, among other causes, due to:

a) The incorporation of a counselor specialized in this kind of disorder into the Specialized Educational Orientation Team of Almeria (course 2008/2009) (Fernández, 2014).
b) The emergence of services related to health and educational settings, such as the Early Childhood Care Centers.
c) Greater coordination between the services in charge of identifying developmental difficulties in health (Childhood and Adolescent Mental Health Unit) and education (Educational Orientation Teams).
d) The increase of health professionals' (pediatricians) and educators' (teachers, counselors, etc.) knowledge.
e) The proliferation of associations related to people who present ASD.
f) The increase of specific classrooms specialized in ASD (from one classroom before 2007/2008 to twelve in 2013/2014).
g) The unification of diagnostic criteria and procedures.

METHOD

The information employed refers to a period of eight school years. The reliability of the information was verified and analyzed with the chi-square statistic. We used a spreadsheet (Excel) and a database (Access) to manage the information and the SPSS statistical package to analyze it.

We proposed the following goals of this investigation:

To identify the prevalence of ASD in the school population of the province of Almeria.

To appraise the possible relation between the variable type of schooling and the variable typology of disability underlying students' special educational needs. We wish to determine whether presenting autism, Asperger syndrome, Rett syndrome, childhood disintegrative disorder, or pervasive developmental disorder not otherwise specified preferentially leads to a certain kind of schooling, and if so, whether it is independent of the student's age.

Participants

The analyzed population consists of students enrolled in schools in the province of Almeria and diagnosed with pervasive developmental disorder during the school years 2006-2007 to 2013-2014.

Documentary sources and data analysis

The basic information was collected through the documentation submitted annually by the Consejería de Educación (Educational Council) to the Provincial Technical Team of Educational and Professional Orientation of the Delegation of Almeria. It refers to the type of disability, birth date, and form of schooling.

The analysis was carried out for the period between academic years 2006/2007 and 2013/2014. We note that, for the academic year 2006/2007, we only have global data by diagnostic categories, and we do not have the data for the academic year 2007/2008. Therefore, the global data were calculated using the generation of missing data function by linear interpolation with the SPSS statistical package. The data of the general population from the years 2006 to 2013 were obtained from the public information of the Institute of Statistics and Cartography of Andalucia.

a) The following variables were considered for each of the academic years 2013/14, 2010/11, and 2008/09.
b) Type of disability: autistic disorder, Asperger disorder, childhood disintegrative disorder, Rett disorder, and pervasive developmental disorder not otherwise specified.
c) Type of schooling: ordinary schooling (full-time or for varying intervals) and specific schooling (specific units in ordinary center or special education center).
d) Age groups: (1) 3 to 6 years; (2) 6 to 8 years; (3) 8 to 10 years; (4) 10 to 12 years; (5) 12 to 14 years; (6) 14 to 16 years; (7) over 16 years of age. The age limit is 21 years.

Table 1. Age groups

Age Groups	Ages
1	3 to 6 years
2	6 to 8 years
3	8 to 10 years
4	10 to 12 years
5	12 to 14 years
6	14 to 16 years
7	Olther than 16 years

Internal reliability of the data

In order to perform a contrast, we selected the centers that currently have a specific classroom specialized in ASD (12 schools in all) and we reviewed the data obtained from the databases periodically sent by the Education Council of the Board of Andalucia with the data of each center, according to the Seneca data management application. We reviewed each one of the centers from the academic years 2008/2009 to 2013/2014.

Given that the review of the sampling data was carried out in May 2014, that the basic data used for this work were collected during the years 2008 to 2014, and that we expect to find differences in the data of both sources due to the different review moments and the characteristics of the computer application Seneca, we must determine the consistency of the data. For this purpose, we used Cronbach's alpha.

When exploring the database corresponding to the academic year 2013/2014, we observed a change of tendency in the global number of students with ASD, leading us to confront this information with the development of the population in the province of Almeria from 2006 to 2013. We used Cronbach's alpha to appraise the internal reliability of the data.

Data analysis

Data analysis was conducted with the computer applications Access, Excel, and SPSS (Statistical Package for the Social Sciences). To identify the age groups, we used Excel. It performs a transformation into age groups using a conditional conversion function. The xls file (Excel) was imported from SPSS as *new query*, creating a new data file in sav format (SPSS).

The identification of possible repeated data was refined using Access.

We analyzed internal reliability with Cronbach's alpha and contingency tables analysis with the chi square statistic (χ^2) (Rodríguez & Mora, 2001) in order to determine whether the disability typology is determinant for a student to be enrolled in a certain educational mode.

We counted the number of students enrolled in the province of Almeria by course and diagnostic category. We then created a table with the results for each center with a specific classroom specialized in ASD between academic years 2008/2009 and 2013/2014 with the information from the databases used as the source and the information contained in the Seneca management application (consulted during May 2014).

The contingency table for academic years 2008/2009 to 2013/2014 was created from the following variables:

Variables: Schooling modality x Type of disability.

Variables: Schooling modality x Type of disability with the control variable academic course.

For students with special education needs associated with *autism, Asperger syndrome and pervasive developmental disorder not otherwise specified*: Type of schooling x Age groups.

RESULTS

Reliability Analysis of the Data

We created a table with the number students for each of the academic years (from 2008/2009 to 2013/2014) for each center that had a specific classroom specialized in ASD in the academic year 2013/2014.

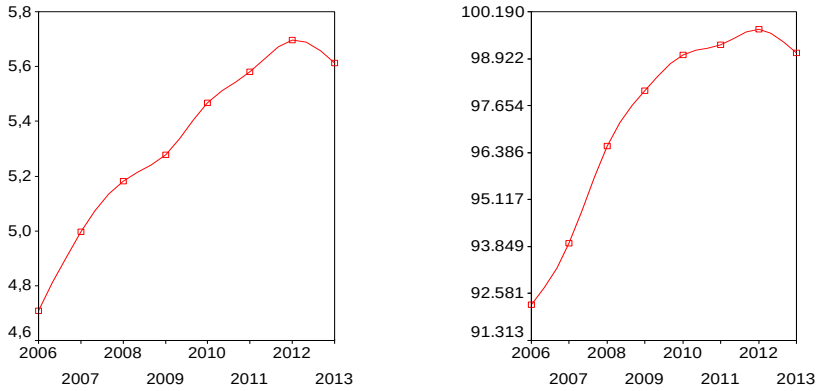
We obtained a Cronbach's alpha value of .99, indicating that the data from the databases contrasted with the data from the SENECA application can be considered reliable. In view of the considerable difference in the number of students with autistic ASD compared to the general school-age population of Almeria during the years 2006/2007 to 2013/2014, we used the standardized value of Cronbach's alpha. We obtained an alpha value of .97, indicating the standardized fit of both sources and the reliability of the data used.

Analysis of variables

a) Calculation of the prevalence rate of ASD in the Almeria school population

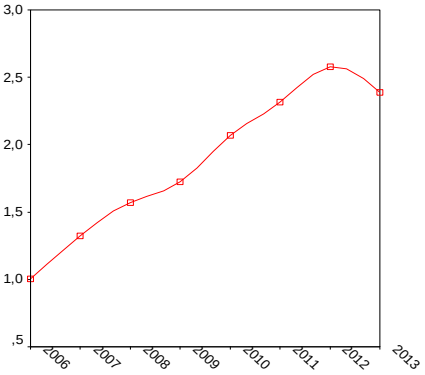
An important variation was observed from 2006 to 2013 (δ=55 for a mean value of the prevalence rate of 1.87) which became stabilized during the last three years (2010 to 2013) M=2.43, SD=0.13 (out of every 10,000 students enrolled, 25 students present special educational needs associated with ASD).

Figure 2. Evolution sequence of ASD students and school-age population of the province of Almeria



Source: Author

Figure 3. Prevalence rates of ASD by year



Source: Author

By diagnostic categories, it is observed that:

1. Autism: the greatest increase in the figure that represents the distribution of ASD students by diagnostic categories and courses in the province of Almeria occurs:

Between academic years 2006/2007 and 2009/2010, the equation that defines the function is $a_1=-x^2+17x+17$. The value of the derivative at the point corresponding to the academic year 2009/2010 is 11 (slope).

Between academic years 2010/2011 and 2012/2013, the equation that defines the function is $a_2=9.5x+57$. The value of the slope is 9.5.

Between academic years 2009/2010 and 2010/2011and, there is a small plateau, as people with ASD decreases by 3 students.

Between the academic years 2012/2013 and 2013/2014, there is a decrease of 12 students (-14%). The period in which a greater number of students are proportionally identified is the interval between academic years 2006/2007 and 2009/2010.

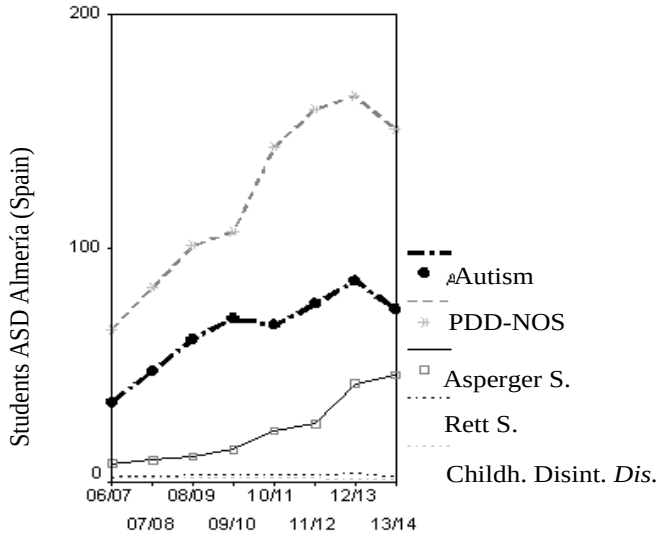
2. Pervasive developmental disorder not otherwise specified (PDD-NOS).

Between academic years 200620/07 and 2008/2009, the equation is t1=18x+47 (slope 18). Between academic years 2009/2010 and 2012/2013, the equation is t2=26x+88 (slope 26). There is only a period of decrease between academic years 2012/2013 and 2013/2014 (-8.5%). The period in which a greater number of students are proportionally identified is the interval between academic years 2009/2010 and 2012/2013.

3. Asperger Syndrome.

When examining the figure of the evolution of ASD students in the province of Almeria, we observe that the greatest increase occurs between academic years 2010/2011 to 2012/2013 with a 190% increase, and this is the only diagnostic category that increased during the academic year 2013/2014, in spite of the global population decrease observed in the autism and nonspecific pervasive developmental disorder diagnostic categories.

Figure 4. Distribution of ASD students by diagnostic category and course in the province of Almeria



b) Analysis of the incidence of schooling modality by diagnostic category

We analyzed the incidence of schooling modality by diagnostic categories for the academic years 2013/2014, 2010/2011, and 2008/2009.

In the academic year 2013/ 2014, a total of 274 students are diagnosed as pervasive developmental disorder not otherwise specified, of whom 74 are identified as autism, 46 as Asperger syndrome, 2 as Rett syndrome, 1 as childhood disintegrative disorder, and 151 as nonspecific pervasive developmental disorder. A total number of 99679 students are enrolled in the province, representing a prevalence of 2.7‰, that is, approximately 3 students out of every 1,000 presents some pervasive developmental disorder (1.5‰ nonspecific pervasive developmental disorder, 0.7‰ autism, and 0.5‰ Asperger syndrome).

By age groups, 1.2‰ of the preschoolers, 3‰ of the Primary Education students, and 3.5‰ of the Compulsory Secondary Education students present pervasive developmental disorder.

Table 2. Distribution of students with GAD and ASD x Type of students by type of disability in 2013/2014

	Type of schooling			Total
	A	B	C	
Autism	1	11	62	74
Asperger Syndrome	1	44	1	46
Rett Syndrome	0	1	1	2
Childhood disintegrative disorder	0	0	1	1
Nonspecific pervasive developmental disorder	2	71	78	151
	4	127	143	274

Source: Author-elaboration.

Pearson's chi-square was $\chi^2(8)=77.31$, $p<.01$, with a likelihood ratio of 93.126 ($df=8$), $p<.01$, revealing dependence between the variables type of disorder and type of schooling (the hypothesis of independence is rejected), as in the case of the analysis of the likelihood ratio of chi-square.

From the analysis of corrected residuals, it can be seen that there is dependence in the cases of autism and Asperger syndrome, but it was not possible to establish in the rest of the syndromes: in Rett syndrome and childhood disintegrative disorder, because of the few number of cases; in the case of nonspecific pervasive developmental disorder, because the standardized residuals were lower than 2.58 (99% confidence level).

c) Analysis of the incidence of type of schooling modality by age groups according to diagnostic categories

In all the age groups, there are a significantly greater number of students with autism-related special educational needs enrolled in specific modalities than in ordinary modalities. From the chi-square analysis, it follows that they are enrolled independently of their age group. The variable age group does not influence the type of schooling.

The students who are attending school in ordinary modalities are found especially in Group 1 (3 students between 3-6 years out of a total of 9 students in this age group) and Group 2 (a group of 6-8-year-olds 5 students out of a total of 16).

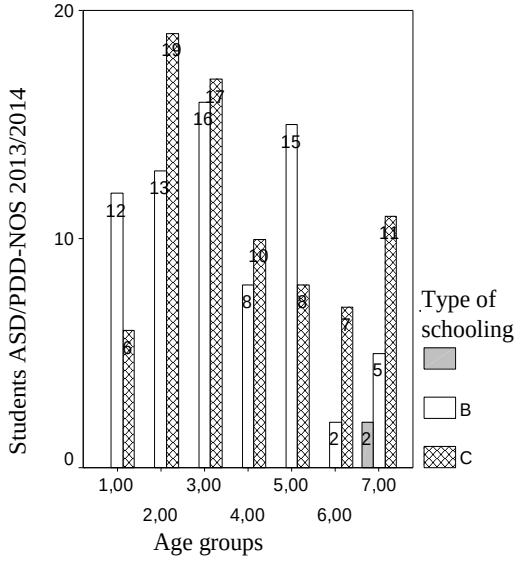
In all the age groups, the number of students with special educational needs associated with Asperger syndrome is being schooled in ordinary modalities. From the chi-square analysis, it follows that they are enrolled independently of their age group. The variable age group does not influence the type of schooling.

In the case of students with special educational needs associated with nonspecific pervasive developmental disorder, the significance of $\chi^2(12)=25.15$, $p<.014$, so the hypothesis of independence between the variables can be rejected. In addition, the analysis of the standardized residuals indicated that no value is greater than 1.94 (95% confidence level); therefore, no relation of dependence between age group and type of schooling for students with nonspecific pervasive developmental disorder can be established.

Table 3. Comparison academic years 2008/2009-2010/2011-2013/2014

ASD Students	Course 2008/2009	Course 2010/2011	Δ frequency	%	Course 2010/2011	Course 2013/2014	Δ frequency	%
Autism	61	69	8	13.11	69	74	5	7.25
Asperger Syndrome	11	22	11	100.00	22	46	24	109.09
Nonspecific pervasive developmental disorders	101	137	36	35.64	137	151	14	10.22
	173	228	55	31.79	228	271	43	18.86

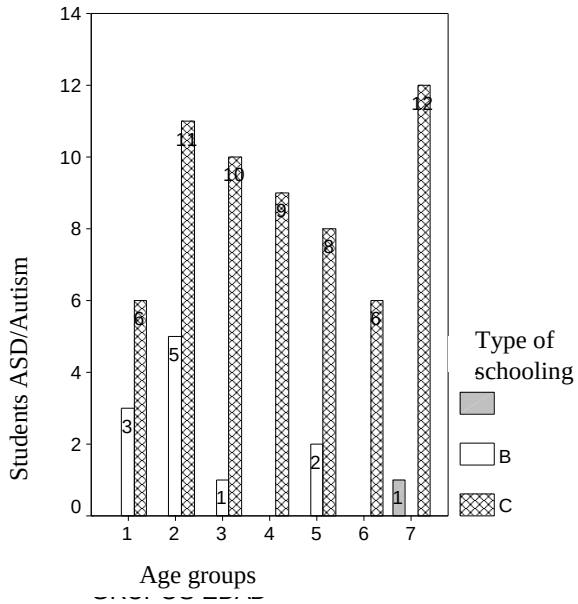
Figure 5. ASD students. Nonspecific pervasive developmental disorder (2013-2014)



In the academic year 2010/2011, there was a total of 228 students with pervasive developmental disorder, of whom 69 present autism, 22 present Asperger syndrome, and 137 present nonspecific pervasive developmental disorder. Since academic years 2010/2011 to 2013/2014, there has been a global increase of 43 students (18.86%), which is particularly significant in the case of students with Asperger syndrome (109.09%).

In the academic years 2008/2009, 2010/11, and 2013/14, the data analysis and the chi-square values show that students with autism are preferably schooled in specific modalities, especially as of the age of 10-12 years, corresponding to age group 4.

Figure 6. ASD students. Autism (2013-2014)



In the case of students with Asperger syndrome, they are schooled in ordinary modalities, independently of their age group. In contrast, in students with special educational needs associated with pervasive developmental disorder, no dependence between type of disability and type of schooling is observed, independently of the age group (Table 2).

Preschool children are preferably enrolled in ordinary modalities. Although enrollment in specific modalities is increasing, ordinary schooling modalities still predominate. However, starting at age group 6-14 years, this tendency is reversed, and specific modalities predominate over the ordinary ones.

DISCUSSION

In general, there has been an increase in the population identified with special educational needs associated with ASD since academic years 2007/08 to 2013/14. This increase has become stable in the last three years, and there has been an adaptation to the general population movement. So, the prevalence rate for the school-age population is estimated at 25 for each 10,000. In the specific case of students identified with Asperger syndrome, the identification process always shows an increasing tendency independently of the population variations, suggesting that this identified population is not stabilized, and that it will continue to increase faster than in the rest of the diagnostic categories. Considering the population contribution of Asperger syndrome to the aggregate of ASD, this should not lead to great changes in the general prevalence rate, which could increase by one or two points.

This has led to an increase of specialized resources for the specific care of these students, among which we can mention: specific classrooms specializing in ASD (going from 1 in the academic year 2007/2008 to 12 in the academic year 2013/2014), greater inter-administrative coordination, and an increase in the number of associations of relatives. The result has been improvements in the identification and intervention procedures. In this regard, we note that during the course 2008/2009, a counselor specialized in ASD was added to the Specialized Educational Orientation Team. This situation coincided in time with the increase in the identification rate of students with ASD (especially nonspecific and Asperger syndrome), as well as an increase specific classrooms specialized in ASD.

The inclusion of specialized resources in educational orientation targeting students with ASD has been shown to be relevant for the improvement of the identification processes and the revitalization of the resources aimed at improving their care and educational needs.

Taking into consideration the differences in prevalence by age groups, the difficulty involved in detecting and appraising ASD at early ages make it foreseeable that 1.8‰ (approximately 40-45 preschool students) is not diagnosed with ASD nor will they be diagnosed in the next few years. They may be currently identified as having severe developmental disorders, mainly severe language development disorders. The use of these categories is new; the educational orientation services in Andalusia began to use them as of the academic year 2010/2011, but they were not used or adapted systematically until the academic year 2012/2013. Therefore, more time must go by in order to identify the provenance of students potentially affected with ASD.

Both in the case of autism as well as in that of Asperger syndrome, schooling is linked to the type of disorder; in autism, to schooling in specific modalities.

In the case of nonspecific pervasive developmental disorder, one would have to analyze whether certain aspects, such as intellectual capacity or the presence/absence of certain types of behaviors, have to do with the reasons for selecting a certain type of schooling. Both in the case of autism and nonspecific pervasive developmental disorder, students are preferably enrolled in ordinary modalities in the first age groups, and enrollment in specific modalities increases with the students' age.

REFERENCES

Aguirre, P., Alvarez, R., Angulo, M.C. & Prieto, D. (2008). *Manual de atención al alumnado con necesidades específicas de apoyo educativo derivadas de trastornos generales del desarrollo. Sevilla: Junta de Andalucía.* Sevilla: Consejería de Educación, Junta de Andalucía.

Alonso, A.C. (2003). Detección precoz de los trastornos del espectro autista. [Early detection of autism spectrum disorders]. Herramientas válidas para la detección del autismo y trastornos afines en las consultas de Pediatría [Valid tools for the detection of autism and related disorders at paediatric consultations]. In E. AEPap Curso de actualización Pediatría 2003 (pp. 169-178). Madrid: Exlibris.

Alvarez, L. (1996). El autismo: evaluación e intervención educativa. *Aula Abierta*, *67*, 32-50.

American Psychiatric Association (2002). Diagnostic and statistical manual of mental disorders-text revision (4th Ed.). Washington, DC: Author. [Spanish version: *DSM-IV-TR. Manual Diagnóstico y Estadístico de los Trastornos Mentales*. Barcelona: Masson.

American Psychiatric Association (2013). *DSM-5. Diagnostic and Statistical Manual of Mental Disorders.* (5th Ed.). Arlington, VA: Author. Retrieved on April 24, 2014 from http://dsm.psychiatryonline.org

Fredericks, H.D.B., Buckley, J., Baldwin, V.L., Moore, W. & Stremel-Campbell, K. (1983). The education needs of the autistic adolescent. In E. Schopler & G.B. Mesibov (Eds.), *Autism in adolescents and adults.* New York: Plenum Press.

Fernandez, I. & Alvarez, E. (1989). *Estudi Llevant. El desarrollo psicomotor de 1702 niños de 0 a 24 meses* [Estudi Llevant. The psychomotor development of 1702 children aged 0-24 months] Doctoral thesis. Barcelona: University of Barcelona.

Fernández, M.C. (2014). *Informe-estudio: Justificación de la necesidad de incremento del Equipo de Orientación Educativa Especializado en Trastornos del Espectro Autista en Almería.* [Report-study*:* Justification of the need to increase the Educational Orientation Team Specialized in Autism Spectrum Disorders in Almeria]. Unpublished poly-copied document. Almería: Delegación Provincial de Educación y Ciencia.

Fernández, I., Fuentes, J. & Rueda, J. (1991). *Escala Haizea-Llevant* [Haizea-Llevant Scale] Vitoria: Departamento de publicaciones del Gobierno Vasco.

Fortea, M.O., Escandell, M.O. & Castro, J.J. (2013). Aumento de la prevalencia de los trastornos del espectro autista: una revisión teórica [Increase of the prevalence of autism spectrum disorders: A theoretical review]. *International Journal of Developmental and Educational Psychology. INFAD. Revista de Psicología*, *1*(1), 746-768.

Frith, U. (1991). *Autismo: hacia una explicación del enigma* [Autism: An explanation of the enigma]. Madrid: Editorial Alliance.

Gobierno de Aragón (2001). Resolución de 3 de septiembre de 2001, de la Dirección General de Renovación Pedagógica, por la que se dictan instrucciones sobre las unidades específicas en centros de educación infantil y primaria para la atención educativa a alumnos con

necesidades educativas especiales. [Resolution of September 3, 2001, of the Directorate-General of Educational Renewal, which dictates instructions on specific units in preschool and primary education for the educational care of students with special educational needs]. *Boletín Oficial de Aragón (BOA), 111*, 7136-7137.

Gobierno de Aragón (2013). Orden de 9 de octubre de 2013, de la Consejería de Educación, Universidad, Cultura y Deporte, por la que se regulan los centros de atención preferente a alumnos con trastorno del espectro autista. [Order of October 9, 2013, of the Ministry of Education, University, Culture and Sport, which regulates preferential care to students with autism spectrum disorder]. *Boletín Oficial de Aragón (BOA), 222*, 29137-29143.

Gobierno de Canarias (2010). Orden de 13 de diciembre de 2010, por la que se regula la atención al alumnado con necesidades específicas de apoyo educativo en la Comunidad Autónoma de Canarias [Order of December 13, 2010, which regulates attention to students with specific needs of educational support in the Autonomous Community of the Canary Islands]. *Boletín Oficial de Canarias (BOC), 250*, 32374-32398.

Iceta, A. & Yoldi, M.E. (2002). Desarrollo psicomotor del niño y su valoración en atención temprana. [Children's psychomotor development and its assessment in early intervention]. *Anales del Sistema Sanitario de Navarra, 25*(2), 35-43.

Inspección Provincial de Educación. Ciudad Real (2011). *Guía para la escolarización del alumnado con necesidades específicas de apoyo educativo* [Guide for the education of students with special educational needs]. Retrieved on April 20, 2014 from http://edu.jccm.es

Jimenez, R. & Pons, A. (2010). *Proceso trastornos del espectro autista: proceso asistencial integrado*. [Process of autism spectrum disorders: Integrated care process]. Sevilla: Consejería de Salud, Junta de Andalucía.

Junta de Andalucía (2005). *Instrucciones de 15 de septiembre de 2005, de la Dirección General de Participación y Solidaridad en la Educación, para la actualización de los datos sobre las necesidades educativas del alumnado, en la aplicación informática de gestión de centros "Séneca" para el curso 2005/2006.* [Instructions of September 5, 2005, of the General Direction of Participation and Solidarity in Education, for the updating of data on the educational needs of the students in the computer management application of "Séneca" centers for the academic year 2005/2006]. Sevilla: Author.

Junta de Andalucía (2012). *Circular de 3 de septiembre de 2012 de la Dirección General de Participación y Equidad por la que se establecen criterios y orientaciones para el registro y actualización de datos en el censo del alumnado con necesidades específicas de apoyo educativo en el sistema de información "Séneca"*. [Circular of September 3, 2012 of the General Direction of Participation and Equity which establishes criteria and guidelines for the recording and updating of data in the census of students with special education needs in the "Seneca" information system]. Sevilla: Author.

Junta de Andalucía (2014). *Instrucciones de 20 de Febrero de 2014, de la Secretaría General de Educación, sobre los procedimientos de admisión y matriculación del alumnado, para el curso 2014-15.* [Instructions on February 20, 2014, of the General Secretary of Education, on the procedures for admission and registration of students for the academic year 2014-15.] Sevilla: Author.

Riviere, A. (2002). *Inventario de espectro autista (IDEA).* [Inventory of autism spectrum disorders (IDEA)]. Serie autismo [Autism series]. Buenos Aires: Fundación para el Desarrollo de Estudios Cognitivos (FUNDEC).

Robins, D.L., Fein, D. & Barton, M. (1999). *The Modified Checklist for Autism in Toddlers (M-CHAT)*. Self-published (Translation: Grupo Estudio MCHAT España Trads, 2009).

Rodriguez, M.J. & Mora, R. (2001). *Estadística informática: casos y ejemplos con el SPSS* [Statistical computing: Cases and examples with the SPSS]**.** Alicante: University of Alicante.

Rogel-Ortiz, F.J. (2005). *Autismo* [Autism]. *Gaceta Médica de México, 141*(2), 143-147.

Valdez, D., Rivière, A., Martos, J. & Ruggieri, V. (2001). *Autismo: Enfoques actuales para padres y profesionales de la salud y la educación* [Autism: Current approaches for parents and professionals in the health and education]. Buenos Aires: FUNDEC.

Wing, L. & Gould, J. (1979). Severe impairments of social interaction and associated abnormalities in children: Epidemiology and classification. *Journal of Autism and Developmental Disorders, 9,* 11-29.

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