

Autism Spectrum Disorders and inclusion attitudes in the Italian school environments: teachers' knowledge, attitudes, perceptions and their necessity to consult a healthcare multidisciplinary team

Luana Conte¹⁻², Roberto Lupo³, Chiara Mazzearella⁴, Antonino Calabro⁵, Laura Vaglio⁶, Sandro Chirizzi⁷, Carmen Donadio⁸, Maicol Carvello⁹, Alessandra Marsella¹⁰, Giovanna Artioli¹¹, Elsa Vitale¹²

¹Laboratory of Biomedical Physics and Environment, Department of Mathematics and Physics "E. De Giorgi", University of Salento, Lecce, Italy; ²Laboratory of Interdisciplinary Research Applied to Medicine (DReAM), University of Salento and Local Health Authority (ASL), Lecce, Italy; ³San Giuseppe da Copertino Hospital", Local Health Authority (ASL) Lecce, Italy; ⁴S.IN.T.STP.A.R.L. Society" – Dialisi Domiciliari, Lecce, Italy; ⁵Nuovo Ospedale degli Infermi", Local Health Authority (ASL) Biella, Italy; ⁶High School "Dante Alighieri" Ravenna, Italy; ⁷University of Foggia, Italy; ⁸Salvatore Peragine" Hospital, Local Health Authority (ASL) Stigliano, Italy; ⁹Brisighella Community Hospital, Local Health Authority (ASL) of Romagna, Italy; ¹⁰High School "Del Prete - Falcone", Sava, Taranto, Italy; ¹¹University of Parma, Italy; ¹²Department of Mental Health, Local Healthcare Authority Bari, Italy

Abstract. *Background:* Schools play a key role in detecting early signs of autism and creating a targeted pathway of study and inclusion. This becomes complicated when faced with unknown situations, such as managing a student with Autism Spectrum Disorders (ASD). *Materials and Methods:* A nationwide study involving teachers (n=235) was conducted from March to August 2021. The survey instrument consisted of a questionnaire administered online through social networks containing socio-demographic data, attitudes, knowledge and inclusion plans from school teachers towards students with ASD. *Results:* Statistical significant differences were registered for the item no.13: among the main deficits caused by ADS are reduced social cognition, language abnormalities, and impaired sensory functioning. (p=.025); the item no.8 (p=.011): if an intervention works for one child with ASD, it is certain to work on another child with ASD; the item no.3(p=.002): genetic factors play an important role in the causes of ASD. By also considering teacher's attitudes towards ASD according to the presence of a healthcare worker in the school environment, significant differences were registered for the item no.1 (p=.032): the interpretation that the diagnostic criteria for Asperger's syndrome are the same as for high-functioning autism; the item no.6 (p=.025): children with ADS are very similar to each other, and the item no.7(p=.015): early intervention does not lead to additional benefits for children with ASD. *Conclusions:* The presence of professionals with advanced skills could be a benefit and represent a strong point in the application of measures of prevention and containment of community pathologies. (www.actabiomedica.it)

Key words: Autism Spectrum Disorder, inclusion, school

Background

Autism Spectrum Disorders (ASD) are a heterogeneous group of neurodevelopmental disorders of

unknown etiology. These are characterized by a qualitative impairment in the areas of social interaction and communication, and repetitive and stereotyped patterns of behavior, interests, and activities (1). In 2016,

the Centers for Disease Control and Prevention (CDC) in Atlanta, show that the world incidence of ASD was 1 out of 54 students (Specific Learning Disorders). In Italy, however, it has been estimated that 1 out of 77 students have ASD with a higher prevalence in males compared to females (4:1). On the other hand, studies conducted in Asia, Europe, and North America have identified ASD individuals with an average of 1% to 2% (2).

A recent study of 631,619 European students aged 7-9 years determined an average prevalence of 12.2 per 1000 (1 in 89). The value across countries ranged from 4.4 to 19.7 per 10000. The prevalence of autism is growing in Italy and around the world. In fact, in Italy, compared to 435.000 new births in 2020, the ASD students would be over 4.000 per year. The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) introduces the concept of autism spectrum, determining a turning point in the way autism is diagnosed, and therefore understood (3). We move from an old categorical diagnosis to a multidimensional diagnosis, which allows to better defining the characteristics of the person, set treatments that are more effective and promote research. Various studies and research show that the prevalence of autism among students in Italian schools is continuously increasing; now standing at around 1% of the total school population. This figure is confirmed by the National Observatory for the Monitoring of Autism Spectrum Disorders, which emphasizes that these are highly complex disorders that accompany the individual throughout his or her life and, therefore, challenge the entire system of care (health, educational, economic) (4). In Italy, the Law no. 517/1977 and no.104/1992 allowed to children with Autism to have the right to attend everyone's school. This new condition implied adequate competence by teachers. Therefore, the knowledge of the autism spectrum disorder characteristics became essential in order to improve practical educational interventions. Daily, teachers had to solve several special educational needs, hence the need to adapt their practices and methodologies in order to promote student learning. The so-called "behavioral" intervention programs were aimed at modifying general behavior to make it functional to the tasks of everyday life. Among these, the Applied Behavioral Analysis (ABA) had

certainly made it possible to develop many educational techniques suitable for different stages of the child's development, for different educational purposes. Another intervention, called Early Start Denver Model (ESDM) provided for an individualized and highly integrated path involved all the child's reference figures (parents in the first place, but also the school environment) and proved effective as emerges from a study conducted on 22 English children diagnosed with autism spectrum disorder (5). The goal of ABA is to increase behaviors that are helpful and decrease behaviors that are undesired, while the goal of ESDM is to increase social skills and development. ESDM is less structured and rigid, and the child takes the lead. For instance, when prompting a child to attempt a new skill, the ESDM therapist uses the least amount of prompting (to the greatest). The ABA therapist uses the most prompting, fading the prompts as the child learns.

Joint activity is the base for each ESDM activity. The therapist and child build the activity together (the child's choice guides it). And while ABC principles are used, it's utilized in a more natural way than in ABA therapy. It uses rewards for all attempts at a skill (for instance, with natural consequences such as the child gets to play with the toy or eat the snack he has desired). In the process, ESDM uses a large amount of natural social reinforces such as smiling and agreeing in speech (yes, it's your favorite snack). Additionally, ESDM is used from the ages of 6 months until 5 years, whereas ABA therapy can be used throughout the person's lifetime.

Inclusion must be pursued in everyone's school, even if the student presents significant cognitive, relational and behavioral problems and, sometimes, aggressive attitudes towards others and towards themselves. In this entire scenario, the school plays a very delicate and sometimes decisive role. Interpretation keys and in-depth knowledge are needed: a fundamental role is played by the school teachers who must know how to create a climate suitable for the tranquility of all, encouraging inclusion and the creation of a united class group. A study conducted in Saudi Arabia on a sample of teachers from various schools, showed significant differences about the knowledges of autism that vary based on the level of education, teaching

experience and contact with students with autism (6). In a further study, also conducted in Saudi Arabia in 2019 on a sample of 248 teachers, it was found that the total level of knowledge of ASD was 48.7%. In addition, differences emerged with respect to teachers' knowledge based on the type of school and lived experience with students with ASD. The level of education, teaching degree, experience, and gender did not significantly affect (7). In 2021, also in Saudi Arabia, a qualitative study highlighted how some teachers view inclusive education (IE) in their country, confirming that students with autism should continue to be educated in regular school. Furthermore, the participants had adequate knowledge and understanding of IE (8). Extremely interesting is a study comparing teachers in two different countries, China and United Kingdom. Public teachers working in the United Kingdom and the People's Republic of China completed questionnaires that measured their experience with ASD students and their levels of knowledge about the disorder. Results showed that teachers who had experience working with students with ASD demonstrated higher levels of knowledge about the disorder. In addition, teachers from UK had significantly greater knowledge of ASD than Chinese teachers. Crucial, in this sense, is to have an adequate knowledge of these disorders that allows for positive results in the management of these individuals, as well as in the recognition of signs and symptoms that may be a red flag for a social interaction problem. As reported in a literature review (9), the increasing number of students with ASD in mainstream educational settings requires teachers to know how to identify their needs, be able to adapt their educational processes, and facilitate their inclusion. In recent years, educational policies and documents in the international arena have outlined a new profile of competencies for teachers, assuming that it is necessary to start from their personal sphere to build, in the direction, inclusive professional dimension. In this regard, the research has focused on the attitudes to be adopted, as a variable that affects the success of inclusion processes especially in the presence of students with complex disorders, such as those on the autism spectrum (10). To date, there are few studies in the literature on this issue. For this reason, a questionnaire was designed to analyze teachers' knowledge about

ASD and their opinion about the possible presence of a support figure such as a school nurse.

The figure of the school nurse has traditionally been designed to foster and support student performance and promote school attendance. The earliest evidence of this activity dates back to the work of American Lina Rogers who, beginning on October 1, 1902, was tasked with reducing absenteeism rates by intervening in the health needs of students and families related to the spread of communicable diseases in New York City schools. The success of his work led to a reduction in health-related absenteeism by 99 percent in one year (11). Since that time, school nurses have continued to develop by intervening with a wide range of activities carried out that are always oriented toward ensuring the health of students by allowing them to consistently attend school, a prerequisite for success in study. This is highlighted in a recent systematic review (12) where it is shown that the provision of school nursing has a consistently positive impact on student health.

His or her role within the educational institution is carried out through various activities that make him or her a reference figure for pupils, teachers and families, as well as being a link between school, family and Health Service (13,14). In 2007, 75% of educational institutions in the US had a school nurse (15). In many European countries (Sweden, Germany, France, Spain, United Kingdom to name a few), this figure is considered and increasingly recognized as an indispensable promoter of student health (16). In Italy, it is still little widespread and regulated although the subject of several interesting local experiences. In the years 2015 - 2019 (17), the Project "The school promoter of health" was carried out within four Ravenna High Schools, with the aim of fostering communication between young people and the Social Health Services for youth problems: sexual health, addiction prevention, acts of violence, mental health, nutrition and to know the health problems of students in each Institute. The school nurse represented a figure of reference, ready to answer doubts and questions, and his main intervention was outpatient: he dealt with trauma, first aid, taking care of students with diabetes and students with autism (18). Further evidence concerns the ITACA project (ITACA Milan project), which aims to identify adolescents with problems in the area of mental health,

providing information and awareness interventions in secondary schools.

The only legislative references regarding care in schools in our country date back to the decrees of the 1960s regarding school medicine. Article 13 of Presidential Decree No. 264 of February 11, 1961, states that the performance of school medicine services, was the responsibility of general practitioners and specialized school physicians and auxiliary health personnel, consisting of visiting health aides, professional nurses and nursery nurses. In this sense, the presence of the school nurse would provide an opportunity to support health protocols that aim to focus attention toward ensuring the health, safety, and well-being of the educational environment (19). The importance and value of school nursing care is further justified by the increase in acute complications of chronic diseases (20).

An additional aspect to consider is the new PNP 2020-2025 (21), which identifies schools as one of the main settings in which to foster health promotion as a continuous and integrated educational proposal throughout the school career. In the current panorama, characterized by the reopening of educational institutions after the pandemic period, the European Center for Disease Prevention and Control, ECDC, identifies in the staffing of institutions for health control precisely the school nurse (22). Therefore, it would be interesting to include the school nurse within schools. The overall aim of the study is then to detect the knowledge, attitudes and managements of teachers with respect to the students with ASD and suggest the school nurse for support.

Materials and Methods

Study design

An observational, cross sectional, multicenter study was conducted from March to August 2021. The study was carried out through the administration of a digital questionnaire addressed to school teachers. Participants were informed about the modalities and aim of the study and voluntarily agreed to participate by signing an informed consent. Teachers of different educational level, order and grade of school, different

type of contract as well as with a work experience of at least 1 year, were included. Those who did not agree to participate in the study, including incomplete questionnaires, were excluded. Each participant was given the data collection instrument consisting of four sections. Teachers were recruited through snowball sampling until data saturation, online, through social media, and specifically through the following pages “teachers and teachers,” “elementary school teachers,” teacher profession.co.uk, inclusive teachers with at least one year of work experience nationwide.

The questionnaire

The questionnaire administered contained three main sub dimensions. In the first sub dimension all socio-demographic characteristics were collected, as:

- Gender, as the interviewer was female or male;
- Age, expressed in several age groups, specifically: until 25 years, from 26 to 30 years, from 31 to 35 years, from 36 to 40 years, from 41 to 45 years, from 46 to 50 years, from 51 to 55 years, over 56 years;
- Years of work experience, classified into different age groups, particularly: from 1 to 5 years, from 6 to 10 years, from 11 to 15 years, from 16 to 20 years, from 21 to 25 years, from 26 to 30 years or none;
- If the interviewer had any sons;
- Educational levels, such as: diploma, degree, master from different level, PhD;
- Typology of work contract, as it was indefinitely or temporary;
- Typology of teaching, as the interviewer was a curricular teacher or a support teacher;
- The grade of the school where the teacher was employed, as it was a primary school, a secondary school, a lower secondary or a second grade school;
- The area where the school was located, as it was an urban, suburban or rural area, respectively;
- The mean number of student accepted by the school considered, as: 1-300 student, 301-600 students, 601-900 students, 901-1200 students, more than 1200 students;

- The mean number of students who were included in a class, as: less than 10 students, between 11 and 20 students, between 21 and 30 students;
- The success level perception indicated in teaching students with ADS, such as: low, medium, high or none experience reported;
- The importance perceived by the interviewed on the presence of the healthcare professional in the school team;
- In this regard, the healthcare worker typology considered important among school employers;
- Who healthcare professional worked in the school of the interviewers;
- What healthcare workers could promote/ameliorate/improve in the school context.

In the second part of the questionnaire, the “Educators’ Performance on the Knowledge of Autism Spectrum Disorders Questionnaire” was administered. It contained a total of 15 items which participants should select only one answer. Then, a total of answer rate should be performed, by considering the correct answers, the uncertain answers and the incorrect answers given (10,23).

In the latest part of the questionnaire the revised and Italian validated scale of the “Autism Attitude Scale for Teachers” validated and translated in Italian (23,24) was adopted in order to perform teachers’ attitudes on the ADSs. The questionnaire contained a total of 10 items and for each one proposed a Likert scale was associated which varied from 1, as “totally disagree” to 5, as “totally agree”.

Data Analysis

All data collected were entered into Excel spreadsheets and processed with the SPSS program, version 20. As categorical variables, both in the socio-demographic data section and in the scales assessing the knowledge and attitudes of the teachers interviewed on the ASD, all data were presented as frequencies and percentages. *Chi square test* was performed for each item of the teacher’s attitude questionnaire (15 items) and the Autism Attitude Scale for Teachers (10 items) according to the importance of the

presence of the healthcare worker in the school environment. All p values $< .05$ were considered as statistically significant.

Ethical Considerations

The ethical characteristics of the study were set out in the questionnaire presentation and it was designed in accordance with the principles of the Italian data protection authority (DPA). Within the presentation of the questionnaire, the ethical characteristics of the study, the treatment of information for educational purposes and the protection and confidentiality of data from the research, in accordance with Italian Law No. 675 of 1996, were stated. Only those who agreed to participate in the study by signing the informed consent were included.

Results

Two hundred and thirty-five teachers participated in the survey. The majority of the sample belongs to the female gender (91.5%) and has less than 5 years of work experience (31.5%). 61.7% of the respondents had a permanent contract and 40.9% were support teachers. Most of the participants teach at a preschool (40.9%) and 54.9% work in a school located in an urban area with sizes, in most cases, ranging from 1 to 300 students (31.1%), 301 to 600 students (29.8%), and 601 to 900 students (23.8%). The declared number of students per class varies from between 20 and 30 students (55.3%). 41.7% indicate good success in teaching to ASD students and 86.4% consider that the presence of a health professional in the school environment could be essential in order to promptly recognize signs and symptoms attributable to ASD. Among the health professionals most considered important in the school environment, there were the speech therapist (49.8%), the psychologist (63%), the therapist (51.5%) and the school nurse (10.2%). In any case, in 24.7% of cases, none of these health figures appears to be present in the school environment investigated, while 49.4% state the presence of a psychologist, 10.6% of a speech therapist, 13.2% of a therapist and 5.1% of a school nurse. Specifically, when investigating what the

school nurse's areas of expertise might be, participants emphasized health promotion and disease prevention (2.6%), triage and treatment of acute episodes (5.1%), and student interaction with ASD (1.3%). Finally, 3% of respondents declared they did not attribute any role to the school nurse (Table 1).

By considering the ADS knowledge questionnaire among teachers interviewed according to the healthcare worker perception in the school environment (Table 2) statistical significant differences among answers given were registered for the item no.13 ($p=.025$) as the incorrect answers were more than the corrected or uncertain ones, by considering both who agreed and who disagreed with the presence of the healthcare worker in the school context. Additionally, significant difference was reported for the item no.8 ($p=.011$), since correct answers were given both for teacher who agreed and who disagreed the presence of the healthcare worker in their schools. Also, among teachers who disagreed the healthcare worker in their work contexts, nobody given an uncorrected answer, by highlighted that the intervention work in the ADS students might be only a teacher's matter. Finally, significant difference was reported for the item no.3 ($p=.002$), by highlighted more uncorrected and uncertain answers among teacher who agreed the presence of the healthcare workers in their school contexts.

Finally, by considering teacher's attitudes towards ASD according to the presence of a healthcare worker in the school environment (Table 3), significant differences were registered for the item no.1, as the most part of participants, both who agreed and who disagreed the presence of the healthcare worker in their school contexts, agreed to indicate that the presence in the classroom of an autistic student slowed down the carrying out of regular teaching activities. Additionally, significant difference was reported for the item no.6 ($p=.025$), as very few interviewers who disagreed the presence of the healthcare worker in their school contexts, were in discordance with the idea that "Students with autism had great potential in some areas of development". The same trend was observed for the item no.7 ($p=.015$) which stated that "Students with autism are unable to socialize enough to benefit from peer contact".

Table 1. Sampling characteristics (n=235).

Characteristics/Items	Frequencies (%)
Gender	
Female	215 (91.5%)
Male	20 (8.5%)
Age	
>25 years	5 (2.1%)
26-30 years	29 (12.3%)
31-35 years	28 (11.9%)
36-40 years	35 (14.9%)
41-45 years	34 (14.5%)
46-50 years	40 (17%)
51-55 years	34 (14.5%)
>56 years	30 (12.8%)
Years of work experience as teacher	
1-5 years	74 (31.5%)
6-10 years	41 (17.4%)
11-15 years	29 (12.3%)
16-20 years	29 (12.3%)
21-25 years	23 (9.8%)
26-30 years	17 (7.2%)
>31 years	22 (9.4%)
Dependent children	
Yes	143 (60.9%)
No	92 (39.1%)
Educational level	
Diploma	37 (15.7%)
Three-year degree	14 (6%)
Old System Degree (5 years)	52 (22.1%)
Post Graduate Specialization Course	56 (23.8%)
Master I Level	8 (3.4%)
Master II Level	1 (.40%)
PhD	2 (.90%)
Teaching qualification	65 (27.7%)
Type of contract	
Indefinitely	145 (61.7%)
Temporary	90 (38.3%)
Type of teaching	
Curricular teacher	139 (59.1%)
Support teacher	96 (40.9%)
In what grade of school do you teach?	
Primary school	38 (16.2%)
Primary School	96 (40.9%)
Lower secondary school	47 (20%)
Second grade secondary school	54 (23%)
Where is the school where you currently teach located?	
Urban or metropolitan area	129 (54.9%)
Suburban area	77 (32.8%)
Rural area	29 (12.3%)

Characteristics/Items	Frequencies (%)
How many students does your school accept on average?	
1-300 students	73 (31.1%)
301-600 students	70 (29.8%)
601-900 students	56 (23.8%)
901-1200 students	21 (8.9%)
>1200 students	15 (6.4%)
How many students does your class receive on average?	
>10 students	2 (.90%)
11-20 students	103 (43.8%)
21-30 students	130 (55.3%)
Level of success achieved to date in teaching students with ADS:	
Low	15 (6.4%)
Medium	98 (41.7%)
High	58 (24.7%)
None experience	64 (27.2%)
Do you think that a healthcare professional can be useful to promptly recognize signs / symptoms attributable to ADS?	
Yes	203 (86.4%)
No	32 (13.6%)
Which health professionals could be very helpful in ensuring adequate teacher support?	
Speech therapist	117 (49.8%)
Psychologist	148 (63%)
School nurse	24 (10.2%)
Therapist	121 (51.5%)
Which of these health professionals work in your school?	
Speech therapist	25 (10.6%)
Psychologist	116 (49.4%)
School nurse	12 (5.1%)
Therapist	31 (13.2%)
None	58 (24.7%)
If the school nurse is present, what role does this figure play?	
<i>Health promotion and disease prevention (considering BMI and immunization campaigns)</i>	
Triage and treatment of acute problems	6 (2.6%)
Treatments of chronic conditions	12 (5.1%)
Psychological support (regarding bullying and family problems)	0 (0%)
It favors the interaction of students with autism spectrum disorders	0 (0%)
None role	3 (1.3%)
There is no such figure	7 (3%)
	207 (88.1%)

Discussion

The study, conducted on a population of teachers, aimed to investigate their knowledge about ASD and to assess the possible role of health professionals as support figures for the recognition of signs and symptoms that lead to ASD within the school. The sample that joined the study consisted of 235 participants, of whom 91.5% were female, aged from less than 25 years old to more than 56 years old, had one or two students on average, and had 1 to 5 years of work experience. Only 40.9% hold the position of support teacher, a position sometimes accepted without having adequate preparation. From some studies in the literature on the subject of teachers' attitudes towards the inclusion of students with ASD, quite contrasting data emerges: if there are positive attitudes overall, there are also many concerns especially related to behavioral problems and lack of social interaction of these students. The study conducted by Park & Chitiyo (25) that investigated American teachers' perceptions of students with ASD, shows the presence of positive attitudes especially by younger teachers (25). Also a study conducted in Italy (24) on 306 teachers working at schools of all levels in the Campania region, showed a prevalence of the female gender (85.5%); the age of the participants was between 25 and 56 years and 85.9% of the sample was made up of support teachers; 44.4% worked at pre-school and elementary school, while the rest of the teachers worked at the secondary school of I and II degree. 46% of the participants in our study came from the South/Islands and for 54.9% the school was located in a metropolitan urban area, with a capacity that reaches 21-30 students per class in most cases, as stated by 55.3% of the participants who took part in the study. With regard to the first in-depth dimension, concerning teachers' knowledge of the signs and symptoms of ASD, specifically whether "the diagnostic criteria for Asperger's Syndrome are the same as those for High Functioning Autism", 40.9% (n=96) of the participants answered correctly. In fact, the DSM-IV- R referred to Pervasive Developmental Disorders and referred to five subtypes: Autistic Disorder, Asperger's Syndrome, Rett Syndrome, Disintegrative Disorder of Childhood, Pervasive Developmental Disorder Not Otherwise Specified. With the DSM-V, however, the

Table 2. Autism Spectrum Disorders (ASD) knowledge according to the healthcare worker perception the in the school environment (n=235).

ADS knowledge questionnaire/answers	Correct n;%	Incorrect n;%	Unknown n;%	p-value
Symptoms and Diagnosis				
<i>Item no.1: The diagnostic criteria for Asperger's Syndrome are the same for High Functioning Autism.</i> Agree Disagree	88 (37.45%) 8 (3.40%)	50 (21.28%) 4 (1.70%)	79 (33.62%) 6 (2.55%)	.947
<i>Item no.2: ADS are developmental disorders.</i> Agree Disagree	130 (55.32%) 9 (3.83%)	70 (29.79%) 6 (2.55%)	17 (7.23%) 3 (1.28%)	.405
<i>Item no.4: ADS only occur in childhood.</i> Agree Disagree	193 (82.13%) 14 (5.96%)	16 (6.81%) 3 (1.28%)	8 (3.40%) 1 (0.43%)	.339
<i>Item no.6: Children with ADS are very similar to each other.</i> Agree Disagree	190 (80.85%) 17 (7.23%)	17 (7.23%) 0 (0%)	10 (4.25%) 1 (0.43%)	.465
<i>Item no.10: Most children with ADS exhibit cognitive skills in the disabled sphere of intelligence.</i> Agree Disagree	108 (88.51%) 10 (4.25%)	43 (18.30%) 3 (1.28%)	66 (28.09%) 5 (2.13%)	.890
<i>Item no.11: Most children with ADS have special talents or abilities.</i> Agree Disagree	135 (57.45%) 11 (4.68%)	65 (27.66%) 5 (2.13%)	17 (7.23%) 2 (0.85%)	.882
<i>Item no.13: The main deficits caused by ADS are reduced knowledge of society, language abnormalities and impaired sensory functioning.</i> Agree Disagree	108 (88.51%) 3 (1.28%)	85 (36.17%) 12 (5.11%)	24 (10.21%) 3 (1.28%)	.025*
Therapies and Interventions				
<i>Item no.5: Behavioral therapy is an intervention that is most effective on children with ADS.</i> Agree Disagree	132 (13.62%) 6 (2.55)	44 (18.72%) 6 (2.55%)	41 (17.45%) 6 (2.55%)	.074
<i>Item no.7: Early intervention does not lead to additional benefits for children with ADS.</i> Agree Disagree	181 (77.02%) 14 (5.96%)	29 (12.34%) 3 (1.28%)	7 (2.98%) 1 (0.43%)	.794
<i>Item no.8: If an intervention works for one child with ADS, it is certain that it will work on another child with ADS.</i> Agree Disagree	206 (87.66%) 15 (6.38%)	5 (2.13%) 0 (0%)	6 (2.55%) 3 (1.28%)	.011*
<i>Item no.9: Medicines can relieve the core symptoms of ADS.</i> Agree Disagree	26 (11.06%) 2 (0.85%)	151 (64.25%) 14 (5.96%)	40 (17.02%) 2 (0.85%)	.716
<i>Item no.15: With the right interventions, most children with ADS can eventually recover from these disorders as they grow up.</i> Agree Disagree	44 (18.72%) 5 (2.13%)	148 (62.98%) 10 (4.25%)	25 (10.64%) 3 (1.28%)	.545

ADS knowledge questionnaire/answers	Correct n;%	Incorrect n;%	Unknown n;%	p-value
Etiology				
<i>Item no.3: Genetic factors play an important role in the causes of ADS.</i> Agree Disagree	124 (52.76%) 5 (2.13%)	50 (21.28%) 11 (4.68%)	43 (18.30%) 2 (0.85%)	.002*
<i>Item no.12: In many cases, the cause of ADS is unknown.</i> Agree Disagree	143 (60.85%) 10 (4.255)	36 (15.32%) 6 (2.55%)	38 (16.17%) 2 (0.85%)	.194
<i>Item no.14: Traumatic experiences in the very early stages of life can cause ADS.</i> Agree Disagree	45 (19.15%) 1 (0.43%)	113 (48.08%) 13 (1.28%)	59 (25.11%) 4 (1.70%)	.186

* $p < .05$ is statistically significant.

Table 3. Teacher's Attitudes toward Autism Spectrum Disorders (ASD) according to the healthcare worker perception the in the school environment (n=235).

Items/Answers	Totally disagree n (%)	Disagree n (%)	Uncertain n (%)	Agree n (%)	Totally Agree n (%)	p-value
<i>Item no.1: The presence in the classroom of an autistic student slows down the carrying out of regular teaching activities.</i> Agree Disagree	3 (1.28%) 2 (0.85%)	6 (2.55%) 0 (0%)	16 (6.81%) 2 (0.85%)	96 (40.85%) 10 (4.25%)	96 (40.85%) 4 (1.70%)	.032*
<i>Item no.2: An autistic student can acquire social and communication skills through appropriate teaching strategies.</i> Agree Disagree	55 (23.83%) 5 (2.13%)	83 (35.32%) 7 (2.98%)	48 (20.42%) 3 (1.28%)	25 (10.64%) 1 (0.43%)	6 (2.55%) 2 (0.85%)	.379
<i>Item no.3: The behaviors adopted by autistic students during class hours negatively influence the behavior of their peers.</i> Agree Disagree	60 (25.53%) 5 (2.13%)	88 (37.45%) 7 (2.98%)	42 (17.87%) 4 (1.70%)	22 (9.36%) 2 (0.85%)	5 (2.13%) 0 (0%)	.972
<i>Item no.4: Students with autism can learn with the support of a competent teacher.</i> Agree Disagree	6 (2.55%) 2 (0.85%)	6 (2.55%) 1 (0.43%)	9 (3.83%) 1 (0.43%)	73 (31.06%) 8 (3.40%)	123 (52.34%) 6 (2.55%)	.190
<i>Item no.5: Students with autism are unable to benefit from regular teaching activities due to their disorder.</i> Agree Disagree	67 (28.51%) 4 (1.70%)	67 (28.51%) 5 (2.13%)	38 (16.17%) 3 (1.28%)	26 (11.06%) 4 (1.70%)	19 (8.09%) 2 (0.85%)	.747

(Continued)

Items/Answers	Totally disagree n (%)	Disagree n (%)	Uncertain n (%)	Agree n (%)	Totally Agree n (%)	p-value
Item no.6: Students with autism have great potential in some areas of development. Agree Disagree	5 (2.13%) 3 (1.28%)	9 (3.83%) 0 (0%)	61 (25.96%) 5 (2.13%)	65 (27.66%) 4 (1.70%)	7 (2.98%) 6 (2.55%)	.025*
Item no.7: Students with autism are unable to socialize enough to benefit from peer contact. Agree Disagree	5 (2.13%) 3 (1.28%)	9 (3.83%) 0 (0%)	33 (14.04%) 4 (1.70%)	93 (39.57%) 5 (2.13%)	77 (32.76%) 6 (2.55%)	.015*
Item no.8: It is important that teachers adapt their teaching to the cognitive styles of autistic students. Agree Disagree	65 (27.66%) 5 (2.13%)	67 (28.51%) 4 (1.70%)	41 (17.45%) 5 (2.13%)	33 (14.04%) 3 (1.28%)	11 (4.68%) 1 (0.43%)	.888
Item no.9: Autistic students are unable to communicate effectively with teachers and peers. Agree Disagree	5 (2.13%) 1 (0.43%)	9 (3.83%) 3 (1.28%)	17 (7.23%) 1 (0.43%)	69 (29.36%) 5 (2.13%)	117 (49.79%) 8 (3.40%)	.180
Item no.10: The presence of an autistic partner makes other students uncomfortable. Agree Disagree	57 (24.25%) 2 (0.85%)	83 (35.31%) 8 (3.40%)	41 (17.45%) 4 (1.70%)	30 (12.76%) 2 (0.85%)	6 (2.55%) 2 (0.85%)	.260

* $p < .05$ is statistically significant.

diagnostic label becomes ASD. Therefore, these subtypes are lost and are now considered different points of the same continuum, attributing the same diagnostic criteria (26). In the second statement, where it is asked if "ASD are developmental disorders", there were 55.32% (n=130) of correct answers. In fact, ASD are neurodevelopmental disorders by definition, i.e., neurodevelopmental disorders (27). On the other hand, the statement "ASD only occur during childhood" is 82.13% correct, since ASD generally occur in the first years of a student's life. Generally, parents are the first to realize their children's difficulties as early as 18 months. In very mild cases, this may occur even after 24 months. In some children, parents report apparently adequate development up to 18 months, followed by a halt and regression of already acquired skills (28). With respect to the statement 'Children with ASD are

very similar to each other', the majority of responses (80.85%) are found to be correct; there are many similar traits in these kinds of subjects. The student with autism does not speak (or speaks little and with little connection to reality) and does not understand language (or understands only some expressions of it, but without grasping its nuances and meanings). The person with ASD is unable to communicate through facial expressions, tones of voice, and physical and eye contact. He or she is unable to fit into social and family contexts. Students with autism have very narrow interests and follow rigid, unchanging behaviors. The ability to plan and organize one's behavior and life, to adjust attention and behaviors to different circumstances is nonexistent or very reduced (29). However, the extent of manifestation is variable from subject to subject; each case is defined differently from another.

The statement, “*Most students with ASD have cognitive abilities in the disabled sphere of intelligence*” finds discordant opinions; 88.51% believe the answer is correct, 28.09% cannot give an answer. This sentence is directly related to the next statement where it is stated “*Most students with ASD have special talents or abilities*” and reinforces the previous results with percentages: 57.45% answer correctly. Vincenzo Calia, a pediatrician, can see all of this in a contribution: “Cognitive potential, memory, computational skills, musical and mathematical abilities can be incredibly developed in some individuals with autism spectrum disorders. In contrast, approximately 30% of individuals with autism have an obvious intellectual disability” (30). A further statement “The main deficits caused by ASD are impaired social cognition, language abnormalities, and impaired sensory functioning...”. As mentioned earlier, the pathogenesis of this disorder is still not well understood. However, 88.51% of the sample responded correctly. An additional in-depth aspect concerns the knowledge of therapies and interventions of the teachers who participated in the study. The statement that behavioral therapy is to be considered an intervention that is most effective on students with ASD, shows (n=132) of correct answers. In fact, a careful analysis of the *Practice Guidelines* drawn up by the American Psychiatric Association (APA) according to *Evidence-Based Medicine* and the *Autism Guidelines* drawn up by the Italian “*Istituto Superiore di Sanità*” (ISS) (4) shows that Cognitive-Behavioral Therapy is now the intervention of first choice for many psychiatric disorders. To date, psycho-educational interventions for ASD, validated by empirical evidence and literature, refer to a theoretical framework of cognitive-behavioral mold. Cognitive-Behavioral Therapy is also indicated as a recommendation for Mild Autism (Asperger’s Syndrome and high functioning autism) for the treatment of anger and comorbidity with anxiety and mood disorders. A cognitive-behavioral intervention is divided into several phases: assessment of the nature and degree of the mood disorder, emotional education, cognitive restructuring, stress management, self-monitoring, and scheduling activities to practice and apply the new cognitive strategies and skills. A central part of the intervention is the teaching of behavioral, cognitive, and emotional skills (coping *skills*) useful in modifying

thoughts and behaviors, which are the cause of negative emotional states, such as anxiety, depression, and anger (30,31). With respect to statement no.7, “*Early intervention does not lead to additional benefits for students with ASD*”, more than half of participants (77.02% n=181) answered correctly. Early diagnosis is critical to initiate an early treatment and rehabilitation pathway and to ensure a positive output. In recent years, several screening tests have been validated including the CHAT (*Checklist for Autism in Toddlers*) questionnaire with its variants M-CHAT* (*Modified Checklist for Autism in Toddlers*) and Q-CHAT (*Quantitative Checklist for Autism in Toddlers*), which allows the identification of suspected cases to be kept under observation (32,33). The Center for Autism and DGS of the Reggio Emilia AUSL has edited the translation of the CHAT (*Checklist for Autism in Toddlers*), a screening tool that is very sensitive to the formulation of a diagnostic suspicion of autism at 18 months of age, and less sensitive to the diagnosis of other autism spectrum disorders. The Autism Center used this tool to activate - in 1998 - the training of family pediatricians on autism, in order to build together an operational pathway for early diagnosis, one of the main goals of the Reggio Emilia model. There is now a rich literature in the international arena that emphasizes the importance of early diagnosis in order to promptly activate an educational and habilitative treatment plan, with the advantage of also achieving a significant reduction in family stress and distress. In addition, the literature of the past 10 years shows that early intervention with optimal educational settings results in increased abilities of autistic children, both in terms of language development and intellectual performance. The authors of the CHAT instrument are Simon Baron-Cohen of Cambridge; Toni Cox, Gillian Baird, Auriol Drew, Kate Morgan and Natasha Nightingale of Guys Hospital; Tony Charman of London College University; and John Swettenhan of Goldsmith; they carried out its standardization with the collaboration of 300 Visiting Health Assistants (ASV) and 30 Family Pediatricians (PdF) for data collection. At the same time, Park and Chitiyo (25) used the same instrument, the Autism Attitudes Scale for Teachers (AAST), to analyze traditional school educators’ attitudes toward children with ASD and found that teachers were more

positive than those surveyed by Olley et al. (23) Park and Chitiyo (25) hypothesized that this was related to the promotion of inclusive education and teachers' increasing exposure to children with ASD.

With respect to the statement, "*If an intervention works for one student with ASD, it is certain to work on another student with ASD*", 94% of study participants responded correctly. Doubts and probably lack of knowledge emerge from item no. 9: "*Medications can alleviate the main symptoms of ASD...*", where the sample's lack of knowledge is evident; in fact, 17.02% cannot answer. From the scientific evidence in the treatment of people diagnosed with autism may emerge the need to resort to drug therapy that aims to address and reduce at the symptomatic level the various problems that can accompany this condition. There are no drugs to treat ASD. The treatments that can be undertaken are supportive and aim to reduce, as much as possible, the symptoms induced. Controlled clinical studies have often demonstrated the ineffectiveness of some pharmacological treatment strategies, as in the case of *Citalopram*, *Naltrexone*, or *Secretin* (32). On the other hand, with regard to knowledge of etiology, the statement, "*Traumatic experiences in the earliest stages of life can cause ASD*" (item no.14), is consistent with another statement, "*With the right interventions, most students with ASD can sooner or later recover from these disorders as they grow up*" (item no.15). There is no scientific evidence in the literature that identifies childhood trauma as responsible for the onset of ASD; as well as with regard to the second statement, several articles report that the autistic student grows up with this condition; if treated in time could learn to live with this condition ensuring a good quality of life and a good maintenance of autonomy. However, if not properly treated, the autistic student can become a severely disabled adult, incapable of autonomy and an adequate social life. With respect to the statement "*in many cases, the cause of ASD is unknown*", 60.85% (n=143), answered correctly. The final section of the data analysis focuses on surveying teachers' attitudes toward students with ASD, using a revised and translated version of the *Autism Attitude Scale for Teachers* (AAST) (20). The presence in the classroom of a student with autism would slow down the performance of regular teaching activities, as 40.85% and 40.85% of the sample responding

to agree or totally agree, shows that the process of inclusion would be negatively affected, in line with the study conducted by Aiello et al. (10), which outlines a profile of teachers' competencies based not only on the acquisition and development of declarative and procedural knowledge but above all on the eminently implicit aspects of teaching, making specific reference to the sphere of attitudes. By influencing the intentional dimension and decision-making mechanisms, in fact, attitudes constitute an important predictor of teachers' teaching actions (10), as well as an essential indicator of the different relationship strategies that teachers adopt when they come into contact with their students, often inhibiting the implementation of potentially inclusive teaching actions (19). This is even more evident in the presence of students with disabilities and, specifically, of students with ASD, since the impairment of the sphere of communication and social interaction that characterizes the functioning of these students does not allow their full participation in school life, generating negative attitudes in teachers and producing, consequently, clear repercussions on the dynamics of inclusion. The scientific literature has long noted that attitudes towards people "with disabilities" represent an important variable that affects the success of inclusion, often denoting a slowdown in the inclusion process (34,35). This is explicitly demonstrated in numerous studies conducted over several years. For example, in 2015 Chung et al. (36) conducted a study involving 234 American curricular and support teachers from all grades (37). Analysis and discussion of the results revealed negative teacher attitudes toward the student with ASD compared to the student with typical development, highlighting the more negative perception of curricular teachers compared to their support colleagues. McGregor and Campbell (37) investigated attitudes toward the inclusion of students with ASD in mainstream schools among a group of Scottish curricular and support teachers by administering a questionnaire on the positive and negative aspects of inclusion, opinions about teachers' abilities to cope with the complexity of ASD, and factors that can promote the inclusion of students with ASD. The results revealed the presence of concerns about the negative impact on students with typical development, especially in relation to the possible lack of attention

on their part and in general with respect to classroom management. It is necessary to promote integration for the autistic pupil in everyone's school. For the autistic child, however, simply being in class can in itself represent an important relational goal, even spending much of his time in individual and repetitive activities. One of the main keys to the success of the school integration process lies in stimulating friendships and help from peers. The inclusion of students with ASD in school improves the understanding of their characteristics that manifest themselves in behavior in accordance with the diagnosis. It is necessary to develop every educational intervention starting from the characteristics, skills and competences of each individual pupil, adapting the activities and the context to them. Understanding the affective and cognitive functioning of pupils with ASD starts from a structured observation of the subject but also of the school context, in particular the class and the pupils that compose it. We need a training model that knows how to combine theoretical knowledge with practical didactic applications and that sees the expert trainers directly in action with the teachers, in a process of knowledge through the joint participation in established activities. It becomes a priority to implement strategies and methods that are in tune with a brain that "works differently" starting from the school environment. The conformation of the environment to the sensory characteristics and the processing and planning possibilities of pupils with ASD should adhere, for a first period, to their different perceptual-cognitive functioning (38). Such an attentive and prepared school environment allows pupils with ASD to feel calm and safe and to put their skills into play to experiment, with the mediation and support of teachers, new functioning ways of communication and socialization.

It is necessary to promote integration for the autistic pupil in each school. For the autistic child, simply being in class represented an important relational goal, even spending much of his time in individual and repetitive activities. One of the main keys to the success of the school integration process lied in stimulating friendships and help from peers. The inclusion of students with ASD in school improved the understanding of their behavioral characteristics that manifest themselves in accordance with the diagnosis. It is

necessary to develop every educational intervention starting from the characteristics, skills and competences of each individual pupil, adapting the activities and the context to them. Understanding the affective and cognitive functioning of pupils with ASD started from a structured observation of the subject but also of the school context, in particular the class and the pupils that composed it. Therefore, a training model that knew how to combine theoretical knowledge with practical didactic applications and that saw the expert trainers directly in action with the teachers, in a process of knowledge through the joint participation in established activities, became essential. The conformation of the environment to the sensory characteristics and the processing and planning possibilities of pupils with ASD should adhere, for a first period, to their different perceptual-cognitive functioning (38). Such an attentive and prepared school environment allowed pupils with ASD to feel calm and safe and to put their skills into play to experiment, with the mediation and support of teachers, new functioning ways of communication and socialization. However, in the literature we also find studies from which positive results can be inferred, such as the study conducted by Park and Chitiyo (25) who, with a group of American teachers, used the *Autism Attitude Scale for Teachers* (10) to investigate teachers' perceptions of students with ASD, highlighting the presence of positive attitudes, especially on the part of younger teachers. A fundamental role is also played by the support teachers. According to data from the Ministry of Education, support places in the last school year 2020/2021 increased by 35.225 units (+ 23.4%). Despite this, there is a high degree of family dissatisfaction with the inclusion of children with ASD in schools. Undoubtedly, teachers without any experience represented a problem which required a contingent necessity in a moment of emergency. In this regard, data showed that among 180.000 support teachers with an increasing of 35.000 places in a single year, there were still pupils with disabilities without support, it almost certainly meant that human resources were poorly distributed (39). In many cases it was difficult to give the most serious pupils an individual support. Every teacher should keep in mind that every child with ASD was different from the other. Most importantly, every child with ASD was

first and foremost a child with their own personality and character like any other child. The role of a multidisciplinary team, made up of psychologists, occupational therapist, nurses, in the school environment, could help children with ASD, in their growth path, and help teachers to identify the potential of children by promoting their sense of efficiency and effectiveness, as well as increasing self-esteem. Perhaps teachers should take a training course to learn about ASD and, if supported by school nurses and occupational therapists, as well as psychologists, could be helpful in writing targeted protocols and programming. The results of the study must be considered taking into account some limitations that mainly concern the choice of electronic dissemination of the questionnaire that may have partially excluded those who had little computer background. Possible *information bias* may due to a reluctant attitude to declare and therefore admit a lack of knowledge of the phenomenon.

Conclusions

The aim of the study was to investigate teachers' knowledge and attitudes about Autism Spectrum Disorders which requires the utmost attention from the Public Administration. Since most teachers believe that the presence of students with ASD in the classroom slows down the normal educational process and that students with ASD should be followed by properly trained and dedicated staff, including the school nurse, a little discussed figure in literature (40), together with occupational psychologists and therapists (41). The solution that is proposed with this study is to promote the presence of specialized figures capable of recognizing relevant signs and symptoms that can be traced back to ASD and, at the same time, figures that can promote school inclusion of an autistic student within a regular class. This figure can promote not only the prevention of risks or the recognition of signs and symptoms for certain disorders, but also promote school inclusion and allow the creation of a unique environment in which everyone is guaranteed the most appropriate teaching, a professional little considered by the teachers themselves.

Conflict of Interest: The Author declares that he has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

References

1. Higher Institute of Health and the Ministry of Health. Observatory Project for Monitoring Autism Spectrum Disorders; 2021. Available at: <https://www.salute.gov.it/portale/saluteMentale/dettaglioContenutiSaluteMentale> Accessed on October 30, 2021.
2. European Commission. Autism Spectrum Disorders in the European union (ASDEU), DG Santè of the European Commission; 2016. Available at: <http://asdeu.eu/wp-content/uploads/2016/12/ASDEUE> Accessed on: October 30, 2021.
3. Ministry of Health and Higher Institute of Health. National Observatory for Monitoring Autism Spectrum Disorders; 2021. Available at: https://www.salute.gov.it/imgs/C_17_pagineAree_5613_0_file.pdf Accessed on: October 30, 2021.
4. Colombi C, Narzisi A, Ruta L, et al. Implementation of the Early Start Denver Model in an Italian community. *Autism* 2018; 22(2):126-133.
5. Haimour I, Obaidat Yahia F. School Teachers' Knowledge about Autism in Saudi Arabia. *World J Educ* 2013; 3: 45-56.
6. Alharbi KA, Alharbi AA, Al-Thunayyan FS, et al. School's Teachers Knowledge About Autism in Al-Badaya city, Al-Qassim Region, Kingdom of Saudi Arabia. *Mater Sociomed* 2019; 31(1): 4-9.
7. Gibbs K, Bozaid A. Conceptualising inclusive education in Saudi Arabia through conversations with special education teachers. *Improv Sch* 2022; 25(2):101-113.
8. Cavus N, Lawan AA, Ibrahim Z, et al. A Systematic Literature Review on the Application of Machine-Learning Models in Behavioral Assessment of Autism Spectrum Disorder. *J Pers Med* 2021; 11(4):299.
9. Aiello P, Di Gennaro C, Girelli L, Olley JC. Inclusion and teachers' attitudes toward students with Autism Spectrum Disorder: reflections from a pilot study. *Form Insegnamento* 2018.
10. Olley JG, Devellis RF, Devellis BM, Wall AJ, Long CE. The Autism Attitude Scale for Teachers. *Except Student* 1981; 47(5):371-2.
11. Segall MJ, Campbell JM. Factors relating to education professionals' classroom practices for the inclusion of students with autism spectrum disorders. *Res. Autism Spectr Disord* 2012; 6:1156-1167.
12. Park M, Chitiyo M. An examination of teacher attitudes toward students with autism. *Journal of Research in Special Educational Needs* 2011; 11: 70-78.
13. Fretti E. Autism in the DSM 5: the criteria for diagnosis and the main novelties; 2019. Available at: <https://www>

- psicoterapiascientifica.it/autismo-dsm-5/ Accessed on November 5, 2021.
14. Sulkes SB, Golisano MD. Students' s Hospital at Strong, University of Rochester School of Medicine and Dentistry, Autism Spectrum Disorders; 2021. Available at: <https://www.msmanuals.com/it-it/casa/problemi-di-salute-dei-bambini/disturbi-evolutivi-e-dell-apprendimento/disturbi-dello-spettro-autistico/> Accessed on November 6, 2021.
 15. Whitehouse AJO, Varcin KJ, Pillar S, et al. Effect of Preemptive Intervention on Developmental Outcomes Among Infants Showing Early Signs of Autism: A Randomized Clinical Trial of Outcomes to Diagnosis. *JAMA Pediatr* 2021; 175(11): e213298
 16. Naples E. Autism and autism spectrum disorders; 2021. Available at: <https://www.ospedalebambinogesu.it/autismo-disturbi-dello-spettro-autistico/> Accessed on November 6, 2021.
 17. Calia V. Autism and autism spectrum disorders; 2021. Available at: <https://www.uppa.it/medicina/malattie-e-disturbi/autismo-disturbi-dello-spettro-autistico/> Accessed on November 6, 2021.
 18. American Psychiatric Association. Diagnostic and statistical manual of mental disorders - Fifth Edition. Edited by Biondi M. Raffaello Cortina Editore Milan 2014.
 19. Robins D, Fein D, Barton M. Instructions for Taking and Scoring the M-CHAT-R autism test; 2019. Available at: <https://www.uppa.it/medicina/malattie-e-disturbi/autismo-disturbi-dello-spettro-autistico/> Accessed on November 7, 2021.
 20. Sharma SR, Gonda X, Tarazi FI. Autism Spectrum Disorder: Classification, diagnosis and therapy. *Ther* 2018; 190:91-104.
 21. Probst P, Leppert T. Brief report: outcomes of a teacher training program for autism spectrum disorders. *J Autism Dev Disord* 2008; 38(9):1791-6.
 22. Sharma U, Sibilio M. The role of teacher perceptions for inclusive teaching: Why plan teacher training on simplistic theory? *Ital J Educ Res* 2016; (16): 11-22.
 23. Chung W, Chung S, Edgar-Smith S, Palmer RB, De Lambo D, Huang W. An examination of in-service teacher attitudes toward students with autism spectrum disorder: Implications for professional practice. *Curr. Issues Educ* 2015; (18)2.
 24. McGregor E, Campbell E. The attitudes of teachers in Scotland to the integration of children with autism into mainstream schools. *Autism* 2001; 5(2):189-207.
 25. Cottini L, Vivanti G. *Autismo come e cosa fare con bambini e ragazzi a scuola*. Firenze: Giunti Editore, 2017.
 26. *Inclusione scolastica: così non va*; 2021. Available at: [Sul-report-statistico-del-ministero.pdf](https://www.flaviofagarolo.it/Sul-report-statistico-del-ministero.pdf) (flaviofagarolo.it). Accessed on February 17, 2022.
 27. Vanzetta M. L'infermiere scolastico, un valore aggiunto. [The school nurse, an added value]. *L'Infermiere*; 2021. Available at: <https://www.infermiereonline.org>. Accessed on November 6, 2021.
 28. McIntosh CE, Kandiah J, Boucher NR. Practical Considerations for School Nurses in Improving the Nutrition of Children With Autism Spectrum Disorder. *NASN Sch Nurse* 2019; 34(5):296-302.
-
- Correspondence:**
Received: 21 February 2022
Accepted: 25 July 2022
Elsa Vitale
Department of Mental Health,
Local Healthcare Company Bari, Italy
Via X marzo, 43, 70026 Modugno, Bari
E-mail: vitaleelsa@libero.it