

# Knowledge and Awareness of the Diagnostic Process and Access to Services for Children with Autism Spectrum Disorders among Professionals and Community Members in Two Countries

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**Abstract:** The study examines autism awareness in two countries, focusing on knowledge of the diagnostic process and support for children and their families. 1,618 participants (1,052 - Bulgaria and 566 - Greece) were provided with an online survey that contained statements about the most important reasons why parents seek professional help, the prognosis of the disorders, and the inclusion process.

The results show that participants from both countries report stereotyped and other ritualistic behaviors, social dysfunctions, and speech and language dysfunctions as significant reasons for parents to consult professionals about their children. Participants from Bulgaria placed greater importance on the first two characteristics.

The participants also responded relatively positively to the statement that children with autism can grow up to live independent lives, have jobs, income, and families, and even more supported the statement that "Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism", with participants from Bulgaria showing more support for both statements.

**Keywords:** Autism spectrum disorder, awareness, public attitudes, cultural differences, early intervention, inclusion.

## 1. INTRODUCTION

### Knowledge and Awareness of Autism in Public and Professional Groups

Surveys on public awareness of autism spectrum disorder show positive results, with the majority of respondents having heard of autism and having a general understanding of the condition. However, opinions vary depending on respondents' levels of knowledge about symptoms, etiology, prevalence, and the types of support that children and their families receive. [1-3].

Many studies in the general population show that people have not only heard of autism, but also know someone with the condition, [4] have a positive attitude, and would be supportive of individuals with autism, [5] but they tend to know more about the symptoms than about the services and therapies that autistic people and their families have access to [6]. However, other research [7] revealed that although participants stated that they already knew about autism, many of them believed that children with ASD should not attend

school or that autism was caused by bad parenting or the use of electronic gadgets. The same study showed that the prevalence of these misconceptions did not align with social status, educational attainment, or professional background. Another study revealed that women with a master's degree and those working in healthcare exhibited higher levels of knowledge about ASD [8]. A study involving people working in childcare settings found that most participants believed there were effective interventions for children with autism [9]. Teachers' attitudes and beliefs are particularly important for the integration of children with autism. Their knowledge and positive attitudes can improve the inclusion of children with autism within their peer environment [3].

Medical specialists also play a key role in supporting children with autism and their families. The knowledge of healthcare professionals is essential for the accurate diagnosis of autism. Early diagnosis of ASD depends largely on the level of awareness and knowledge of both clinicians and parents [10]. Insufficient level of general knowledge among clinicians about the symptoms of autism spectrum disorders can have an adverse effect on the overall health and quality of life of patients [11].

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It appears that erroneous assumptions about ASD often arise in studies of both the general population and professional groups. It is also important to determine whether people in countries that differ in educational practices and the organization of services for children with developmental disabilities hold different opinions about available services for children and their families, and ultimately about the integration of these children into society.

Knowledge and awareness of ASD vary among representatives of different countries, cultures, and socio-economic groups, professionals from different fields, and different age groups. In some cases, age also appeared to have an influence on their ASD awareness. Possessing a robust knowledge base within the general population, including health professionals and people working with children, regarding the diverse manifestations of autism is imperative for the improvement of outcomes and the promotion of well-being for individuals diagnosed with autism. Increased awareness among the general population has been associated with reduced stigma. Public awareness has been shown to have a significant positive impact on the lives of individuals with autism, fostering a more accepting and supportive social environment [6].

### **Types of Services and Activities for Children with Autism Spectrum Disorders (ASD) in Bulgaria**

*Early Intervention Services (Ages 0-3):* The Bulgarian state, in collaboration with NGOs, provides early intervention for children with developmental delays, including autism spectrum disorder (ASD). Services include speech-language therapy, occupational therapy, physical therapy, psychological support, and family counseling. A notable example is the Karin Dom Foundation in Varna, which offers mobile and center-based multidisciplinary support free of charge for the families (<https://karindom.org/en>) [12].

*Diagnostic and Therapeutic Services:* Children with autism can access diagnostic assessments and individualized therapy through licensed centers. These include Applied Behavior Analysis (ABA), sensory integration, PECS, and socio-emotional support. Services are regulated by the Agency for Quality of Social Services/Ministry of Labor and Social Policy, which also monitors therapeutic standards, and by the State Agency for Child Protection (SACP) 2025 [13].

*Day Care and Rehabilitation Centers:* These centers provide structured daily services including care,

education, and therapy. Children participate in routines designed to develop life skills and social functioning. These services are funded by national and municipal programs and monitored by the Agency for Quality of Social Services.

*Inclusive Education Support:* Regional centers for inclusive education support have been established in all major cities, with branches in small settlements. They provide specialists for assessment of educational needs, such as speech therapists, psychologists, and special education teachers. These specialists support inclusive education practices. In addition, many schools and kindergartens have their own team dedicated to inclusive education. Inclusive education is supported through national policy and NGO collaboration. Public schools employ special education teachers, speech therapists, and psychologists, while teachers are trained to apply individualized support strategies. NGOs such as "Child and Space" work with educators and families to support inclusion and reduce school dropout (Child and Space, 2024, <https://detebg.org/en>) [14].

*Specialized Education and Vocational Training:* For children with severe ASD, specialized centers offer functional, adapted curricula focusing on communication and independence. Vocational centers provide life and employment skills to support the transition to adulthood (Ministry of Education and Science, 2024) [15].

*Family Support and Counseling Services:* Families play a central role in therapeutic planning. Licensed services provide psychological counseling, mediation, and parenting support. These services are part of Bulgaria's integrated model for community-based care.

*Community-Based Services and Social Innovation:* Municipalities like Sofia fund community outreach programs through delegated social services and public-private partnerships. Initiatives are supported by social innovation grants coordinated by the Ministry of Labor and Social Policy (MLSP, 2025, <https://mlsp.gov.bm>) [16].

*Advocacy, Rights Protection, and Monitoring:* The SACP coordinates the national policy framework for children with special needs, licenses providers, and leads public education campaigns to reduce stigma. It also oversees pilot programs and cross-sectoral cooperation (SACP, 2025) [13].

**Employment and Transition Services (16+):** Young people and adults with autism participate in employment-readiness programs, job coaching, and supported internships. Inclusive hiring is facilitated through partnerships between NGOs and employers. The Autism Today Association plays a leading role in providing such services (Autism Today, 2024, <https://autism-bg.net>) [17].

**Systemic Early Childhood Intervention and Parent Support:** With UNICEF support, Bulgaria has adopted a systemic approach to early childhood intervention. Municipalities such as Nova Zagora, Sliven, Stara Zagora, Haskovo, and Chirpan pilot integrated models under the European Child Guarantee (European Commission, 2024, <https://ec.europa.eu/social/childguarantee>) [18]. These regions, characterized by child poverty and service gaps, provide home-based and community-based services tailored to local needs (UNICEF Bulgaria, 2025, <https://www.unicef.org/bulgaria>) [19].

**Caregiver Skills Training Program (WHO):** The Caregiver Skills Training (CST) program, developed by the World Health Organization in collaboration with Autism Speaks, is implemented in Bulgaria for caregivers of children aged 2-9 with developmental delays. The program applies evidence-based methods such as JASPER, PRT, and DTT and includes nine group sessions and three home visits (WHO, 2022, <https://www.who.int/publications/item/9789240035119>) [20].

**Social Innovation and Protected Employment:** "Tvorilnitsa" is a protected social space, supported by the Ministry of Labour and Social Policy, that provides employment for people with psychosocial difficulties. Participants engage in textile craft workshops that promote inclusion, creativity, and confidence (Tvorilnitsa, 2025, <https://tvorilnitsa.org>) [21]. "Villa Autistica" is part of the same initiative and supports individuals with developmental disabilities to maximize their potential through creative activities.

**Private Therapeutic Education:** Milea School in Sofia offers personalized education for children with autism and other developmental conditions. The school combines academic learning with ABA, speech therapy, and sensory integration in small groups, ensuring strong family-school collaboration (Milea School, 2025, <https://milea.bg>) [22].

In summary, Bulgaria is gradually developing a multi-layered support system for children with autism

and developmental disorders. Through contributions from public institutions, NGOs, and international partners such as UNICEF and WHO, the country is improving access to care, education, and family-centered services. While regional disparities and staff shortages remain, ongoing efforts demonstrate a growing commitment to inclusion and equity.

### **Types of Services and Activities for Children with Autism Spectrum Disorders (ASD) in Greece**

In Greece, efforts have been made to address the educational and therapeutic needs of children with autism through a range of services spanning from early childhood to secondary education. These services aim to support children's development, facilitate learning, and promote inclusion in society [23].

**Early Intervention and Preschool Services:** Early intervention is considered crucial for children with autism, as it can significantly improve cognitive, social, and emotional development [24]. In Greece, early childhood services for autistic children include: *Day Care and Early Intervention Centers*. These centers, often run by public or non-profit organizations, provide structured support to preschool-aged children with developmental disorders. Services typically include speech therapy, occupational therapy, behavioral therapy, and family counseling. Their goal is to foster early development and socialization skills before school age (European Agency for Special Needs and Inclusive Education, 2022 [25]). **Special Preschool Units:** Public special education kindergartens offer individualized educational programs for children with disabilities, including ASD. These units are staffed by special education teachers, speech therapists, and psychologists. They follow a flexible curriculum tailored to each child's developmental pace (Ministry of Education and Religious Affairs, 2020) [26].

**Inclusion in Mainstream Preschools:** Some children with autism attend public kindergartens with the assistance of parallel support teachers (παράλληλη στήριξη). These educators work individually with students inside the classroom, helping them integrate into the learning environment. This model promotes early inclusion and familiarizes neurotypical peers with diversity [27].

**Services in Mainstream Schools:** Greece has adopted inclusive education policies that encourage the participation of children with special educational needs, including autism, in general education settings. This

approach aligns with EU directives and inclusive education frameworks (European Agency for Special Needs and Inclusive Education, 2022 [25]).

**Parallel Support:** Parallel support refers to the presence of a special education teacher assigned to a specific student within a mainstream classroom. This educator ensures that the child with autism follows the standard curriculum while receiving personalized support to manage academic and behavioral challenges [23].

**Resource Rooms (Integration Units):** These are small, structured support classes within general schools where students with learning difficulties or disabilities can receive individualized or small-group instruction. Children may attend for specific subjects or sessions during the week while remaining in the mainstream class the rest of the time (Ministry of Education and Religious Affairs, 2020) [26].

**School Psychologists and Special Education Coordinators:** Greek schools often employ psychologists and Special Education Needs Coordinators (Συντονιστές Ειδικής Αγωγής) to help assess student needs, support teachers, and create Individualized Education Plans (IEPs). These plans outline specific goals and methods for supporting each child's educational development [24].

**Special Education Schools:** While inclusion is a growing priority, some children with autism require more specialized environments. For those whose needs cannot be met in mainstream education, Greece provides different types of special schools: *Special Primary and Secondary Schools*. These schools serve children with moderate to severe disabilities, including ASD. The curriculum is highly individualized and focuses on both academic and life skills. These schools have small class sizes and specialized staff trained in behavior management and alternative communication strategies (Greek Parliament, 2008) [28]. **Schools for Students with Multiple Disabilities:** Some children with autism also face co-occurring conditions such as intellectual disabilities, epilepsy, or sensory impairments. Specialized institutions cater to this group by offering a multidisciplinary approach to care and education, integrating medical and therapeutic services alongside learning (OECD, 2011) [29]. **Vocational Special Schools (EEEK):** The EEEEK schools (Special Vocational Education and Training Workshops) are secondary-level institutions designated for adolescents with disabilities. They provide practical

training in areas like agriculture, cooking, handicrafts, and computer use, promoting the transition to independent living or supported employment [23].

Despite considerable progress, Greece still faces challenges in fully implementing inclusive education. There are still regional disparities in access to services, especially in rural areas. Additionally, shortages of qualified staff, limited early diagnosis, and bureaucratic delays in assigning support teachers can hinder timely and effective support for autistic children [24]. Ongoing efforts are needed to improve teacher training, ensure continuous professional development, and reinforce inclusive policies through adequate funding and infrastructure. Greater emphasis on public awareness and acceptance of neurodiversity is also crucial for building a more inclusive society.

In summary, Greece has developed a wide range of educational and therapeutic services to support children with autism, from early childhood through secondary education. These include early intervention centers, special and inclusive preschools, in-class support in mainstream education, and specialized institutions for more complex needs. While inclusive education is being promoted, more systemic improvements are required to guarantee equal access and quality support for all children with autism across the country.

It is clear that the structures of health and social services for children with developmental difficulties and their families in the two countries do not differ significantly. In Bulgaria, there is greater involvement of the non-governmental sector and seemingly less centralized, bundled services, while in Greece, there is more variety of support options in schools and preschools, a stronger emphasis on individual support, and a wider range of specialized schools for children with developmental disabilities.

In both Bulgaria and Greece, there is a strong emphasis on inclusive education, with ongoing efforts to support children with autism within their peer groups. The challenges faced by both countries are also similar-limited access and fewer specialists in small settlements, a shortage of qualified professionals, and difficulties in early diagnosis, which is essential for the prognosis and therapy results.

Given the relatively similar organization of services for children with autism, the expectation is that the general public's and specialists' knowledge regarding the diagnostic process, therapy outcomes, and families'

access to services would match. This study examines the knowledge and awareness of the general population and professionals working with children about the process of diagnosing children. Specifically, it explores the first symptoms that parents typically notice and the factors that are associated with parents seeking help from professionals for their child in Bulgaria and Greece. The study also investigates some therapy-related factors, such as the perceptions of people about the prognosis and expectations for the quality of life of children with autism, the effectiveness of interventions, and access to inclusive education. Exploring these key areas is particularly important because higher levels of knowledge about autism have also been associated with improved quality of social interactions between autistic and neurotypical individuals and enhanced acceptance of autistic individuals [30-33]. A more profound understanding of autism has the potential to reduce negative stereotypes [34].

Providing services is a big step forward, but people's knowledge and their attitudes are of great importance for the smooth implementation of inclusive education. These attitudes are crucial for the acceptance of children with autism as full partners in society, in the educational environment, and in people's everyday lives.

## 2. Materials and Methods

To assess the level of knowledge among the general population, the authors of the current study designed an online survey that included items addressing conceptions of autism. The survey was constructed by the authors.

The statements were selected based on:

1. References: Golson *et al.* (2022) [6]; Liu, 2016 [35]; McClain *et al.* (2019) [36]; Harrison *et al.* (2017) [37]; Lindblom *et al.* (2020) [38]; Furnham & Buck (2003) [39]; Hastings & Oakford (2003) [40]; Russell *et al.* (2023) [41]; Garrad *et al.* (2019) [42]; Low *et al.* (2018) [43] and Alsehemi *et al.* (2017) [7].
2. Questionnaires and surveys in the field:
  - a. The Autism Attitude Scale for Teachers [44];
  - b. Multidimensional Attitudes towards Inclusive Education Scale (MATIES) [45].

### 3. The clinical expertise of the authors.

To determine the extent to which respondents' understanding of the questions is accurate, we assessed validity through expert review [46]. For this purpose, expert assessment and the content validity index (CVI) proposed by Souza [47] were used. Expert validation was conducted to check the extent to which the statements were understandable and appropriately formulated. The verification proposed by Souza *et al.* 2017 [47] was followed using the ContentValidity Index (CVI)/experts evaluate the items on a four-point scale: "1 = non-equivalent item; 2 = the item needs extensive revision; 3 = equivalent item, needs minor adjustments; 4 = totally equivalent item".

To accomplish this validation, three ASD specialists were interviewed. The three professionals met the following criteria: 1. They received education in the field of developmental disorders; 2. They have at least 10 years of experience working with children with autism spectrum disorders and their families 3. They have at least 10 years of experience in administering assessment tools, such as interviews, tests, questionnaires, and surveys.

The experts had to rate each statement on the following scale: 1 - the statement is not equivalent; 2 - the statement needs extensive revision; 3 - the statement is equivalent but needs minor adjustments; and 4 - the statement is completely non-equivalent.

The ASD experts' interviews revealed the following about the 8 statements that comprise Parts A and B of our survey: 1. Most parents of children with autism turn to professionals because of symptoms associated with stereotypes and other ritual behaviors - 100% equivalence; 2. Most parents of children with autism turn to professionals because of symptoms related to social functioning - 100% equivalence; 3. Most parents of children with autism turn to professionals because of symptoms related to speech and language dysfunctions - 100% equivalence; 4. All children with autism can grow up and live independent lives, have jobs, earn income, and have families - 100% equivalence; 5. Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism - 100% equivalence; 6. All children with autism must be included in mainstream schools and kindergartens - 100% equivalence; 7. There is a therapeutic approach that is successful for all children with autism - 92%

equivalence; 8. Inclusion in mainstream kindergartens and mainstream schools, as well as free therapy from professionals in the school or kindergarten (speech therapist, psychologist, special education teacher, etc.), is guaranteed for all children with autism. - 100% equivalence.

The original survey contained a total of 17 statements related to the most common manifestations of autism, awareness of the autism diagnostic process, prevalence, and therapy and support for children with autism and their families. For the purposes of this study, the results of 8 statements were analyzed. These statements refer to awareness related to the autism diagnostic process /i.e., the most typical reason the parents turn to professionals because of symptoms of autism/ and to beliefs about therapy and support.

Regarding the survey's reliability, Cronbach's alpha was calculated for each country using all 17 survey questions, yielding 0.87 for Bulgaria and 0.83 for Greece.

## Participants and Tools

A total of 1,618 participants - 1,052 from Bulgaria, and 566 from Greece - participated in the study (demographic data in Supplementary Table 1). The sample size was determined by the availability of access to the target populations.

The survey consists of two parts. The first part includes demographic variables, such as participants' age and gender, and whether their occupation or education/training was related to children with developmental disorders. The second part contains 8 statements structured into two thematic sections. The first section (Group A Statements) examines awareness of the autism diagnostic process, specifically the most common reason parents turn to professionals for symptoms of autism, through three statements. The second section (Group B Statements) addresses beliefs about therapy and support for children with autism and their families through five statements.

Participants had to rank the statements using a six-point Likert scale: "strongly agree"; "somewhat agree"; "neither agree nor disagree"; "disagree"; "strongly disagree"; "don't know, no information". These responses were coded numerically from 6 (strongly agree) to 1 (don't know/no information)

- A. Statements related to Autism Diagnostic process (Group A Statements):
  - 1. Most parents of children with autism turn to professionals because of symptoms associated with stereotypies and other ritual behaviors.
  - 2. Most parents of children with autism turn to professionals because of symptoms related to social functioning.
  - 3. Most parents of children with autism turn to professionals because of symptoms related to speech and language dysfunctions.
- B. Statements related to therapy and support for children with autism and their families (Group B Statements):
  - 4. All children with autism can grow up and live independent lives, have jobs, earn income, and have families.
  - 5. Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism.
  - 6. All children with autism must be included in mainstream schools and kindergartens.
  - 7. There is a therapeutic approach that is successful for all children with autism.
  - 8. Inclusion in mainstream kindergartens and mainstream schools, as well as free therapy from professionals in the school or kindergarten (speech therapist, psychologist, special education teacher, etc.), is guaranteed for all children with autism.

## Procedure

Participants were provided with an online survey that contained a demographic section and a set of statements related to autism, divided into 2 categories: diagnostic process, and treatment and access to services. Before conducting the survey, participants were given a brief text explaining its purpose. Participation was voluntary and anonymous, and each participant could withdraw at any time. By continuing to answer the questions, participants agreed to remain in the study.

Since the survey responses did not follow a normal distribution, we used the Kruskal-Wallis test to examine

**Table 1: Comparisons between the Two Countries for the A and B Statements****Section A: Autism Diagnostic Process**

|   | Bulgaria |      |        | Greece |      |        | Kruskal-Wallis test  |
|---|----------|------|--------|--------|------|--------|--|
|   | Mean     | SD   | Median | Mean   | SD   | Median |  |
| Most parents of children with autism turn to professionals because of symptoms associated with stereotypies and other ritual behaviors. | 4.43     | 1.71 | 5      | 4.33   | 1.49 | 5      | p < 0.05<br>Effect size: 0.09<br>Conf. Interval: (0.03, 0.14)  |
| Most parents of children with autism turn to professionals because of symptoms related to social functioning.                           | 4.30     | 1.70 | 5      | 4.10   | 1.55 | 4      | p < 0.001<br>Effect size: 0.11<br>Conf. Interval: (0.06, 0.17) |
| Most parents of children with autism turn to professionals because of symptoms related to speech and language dysfunctions.             | 4.32     | 1.77 | 5      | 4.38   | 1.51 | 5      | p > 0.05<br>Effect size: 0.03<br>Conf. Interval: (-0.02, 0.09) |

**Section B: Autism Therapy and Support for Children with Autism and their Families**

|  | Bulgaria |      |        | Greece |      |        | Kruskal-Wallis test  |
|--|----------|------|--------|--------|------|--------|--|
|  | Mean     | SD   | Median | Mean   | SD   | Median |  |
| Children with autism can grow up and live independent lives, have jobs, earn income and have families.   | 4.78     | 1.46 | 5      | 4.44   | 1.51 | 5      | p < 0.001<br>Effect size: 0.15<br>Conf. Interval: (0.09, 0.20) |
| Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism.   | 5.48     | 1.06 | 6      | 5.22   | 1.13 | 6      | p < 0.001<br>Effect size: 0.17<br>Conf. Interval: (0.12, 0.22) |
| All children with autism must be included in mainstream schools and kindergartens.   | 4.61     | 1.48 | 5      | 3.95   | 1.56 | 4      | p < 0.001<br>Effect size: 0.25<br>Conf. Interval: (0.20, 0.31) |
| There is a therapeutic approach that is successful for all children with autism.   | 3.02     | 1.67 | 3      | 2.54   | 1.49 | 2      | p < 0.001<br>Effect size: 0.16<br>Conf. Interval: (0.10, 0.21) |
| Inclusion in mainstream kindergartens and mainstream schools, as well as free therapy from professionals in the school or kindergarten (speech therapist, psychologist, special education teacher, etc.), are guaranteed for all children with autism. | 2.58     | 1.75 | 2      | 1.71   | 1.46 | 1      | p < 0.001<br>Effect size: 0.34<br>Conf. Interval: (0.29, 0.39) |

whether there were statistically significant differences ( $p < 0.05$ ) in responses between participants from the two countries. In cases of multiple comparisons, we reported p-values from the respective post-hoc pairwise comparisons. We also reported Cliff's effect sizes and the corresponding confidence intervals. The analyses were performed using MATLAB, version 9.13.0 (R2022b) (The MathWorks, Natick, MA, USA) [48].

**3. RESULTS****I Demographics**

The demographic characteristics of participants from Bulgaria and Greece, along with their distribution by age, gender, and occupation, are presented in Supplementary Table 1.

## II. Comparisons between the Participants' Responses in Each of the Two Categories in Our Survey

Table 1 presents the A and B statements - mean values, standard deviations, medians, and statistical comparisons (p-values and Cliff's effect sizes) between the answers given by the survey participants from the two countries.

## III. Impact of Age and Occupation of the Participants on the Responses by Country

### Bulgaria

- Significant differences among different age groups were found in the following statements:

### Statements Related to Autism Diagnostics

Most parents of children with autism turn to professionals because of symptoms related to social functioning, with significant differences between the following groups:

Age 16-20 and Age 21-30; Age 16-20 and Age 31-40; Age 16-20 and Age 41-50; Age 16-20 and Age 60+ Supplementary Table 2.

### Statements Related to Therapy and Support for Children with Autism and their Families

All children with autism must be included in mainstream schools and kindergartens, with significant differences between the following groups: Age 16-20 and Age 31-40; Age 21-30 and Age 31-40 /Supplementary Table 3/.

Inclusion in mainstream kindergartens and mainstream schools, as well as free therapy from professionals in the school or kindergarten (speech therapist, psychologist, special education teacher, etc.), is guaranteed for all children with autism. - with significant differences between the following groups: Age 16-20 and Age 41-50; Age 21-30 and Age 41-50 /Supplementary Table 4/.

Comparison between two groups - participants who work with children with developmental disorders or are in training, and those who do not work or study in the field - Table 2 (only the significant differences between the responses are included).

### Greece

Significant differences between different age groups and their responses have been found for the following statements:

### Statements Related to Autism Diagnostics

Most parents of children with autism turn to professionals because of symptoms associated with stereotypies and other ritual behaviors - with significant differences between the following groups: Age 16-20 and Age 31-40; Age 16-20 and Age 41-50; Age 16-20 and Age 51-60; Age 21-30 and Age 51-60 /Supplementary Table 5/.

Most parents of children with autism turn to professionals because of symptoms related to social functioning - with significant differences between the following groups: Age 16-20 and Age 51-60; Age 21-30 and Age 51-60; Age 31-40 and Age 51-60; Age 41-50 and Age 51-60 /Supplementary Table 6/.

### D. Statements Related to Therapy and Support for Children with Autism and their Families

Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism, with significant differences between the following groups: Age 16-20 and Age 31-40 /Supplementary Table 7/.

- Comparisons between the two groups of participants - participants who work with children with developmental disorders or are in training, and those who do not work or study in the field – Table 3 (only statements with significant differences are included).

## 4. DISCUSSION

The first group of statements regarding the autism diagnostic process included symptoms listed in the DSM-5 criteria [49]. Regarding symptoms related to stereotypic behaviors, social disorders, and speech and language difficulties, our respondents reported that these manifestations are a frequent reason for seeking professional help, i.e., these groups of symptoms are often noticed by parents. The social and emotional development of young children is the focus of professionals when assessing autism spectrum disorder [50]. Disorders in social relationships and stereotypic behaviors and rituals are identified as significant red flags [51]. However, in real life, social disorders are more difficult for parents to notice, either

**Table 2: Comparisons between two groups of participants from Bulgaria - those who work with children with developmental disorders, and those who do not**

|  | I work with children with developmental problems or I am in training |      |        | I do not work with children with developmental problems or I am not in training |      |        | Kruskal-Wallis test   |
|--|--|------|--------|---|------|--------|---|
|  | mean   | SD   | median | mean  | SD   | median |   |
| <b>Statements related to Autism Diagnosis</b>  |  |      |        |   |      |        |   |
| Most parents of children with autism turn to professionals because of symptoms associated with stereotypies and other ritual behaviors.  | 4.78   | 1.34 | 5      | 4.22  | 1.84 | 5      | p < 0.001<br>Effect size: -0.13<br>Conf. Interval: (-0.20, -0.06) |
| Most parents of children with autism turn to professionals because of symptoms related to social functioning.  | 4.68   | 1.34 | 5      | 4.08  | 1.83 | 5      | p < 0.001<br>Effect size: -0.16<br>Conf. Interval: (-0.23, -0.09) |
| Most parents of children with autism turn to professionals because of symptoms related to speech and language dysfunctions.  | 4.80   | 1.37 | 5      | 4.05  | 1.88 | 5      | p < 0.001<br>Effect size: -0.21<br>Conf. Interval: (-0.28, -0.14) |
| <b>Statements related to therapy and support for children with autism and their families.</b>  |  |      |        |   |      |        |   |
| Children with autism can grow up and live independent lives, have jobs, earn income and have families.   | 4.77   | 1.24 | 5      | 4.80  | 1.55 | 5      | p < 0.05<br>Effect size: 0.09<br>Conf. Interval: (0.02, 0.16)     |
| Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism.   | 5.63   | 0.81 | 6      | 5.39  | 1.17 | 6      | p < 0.05<br>Effect size: -0.09<br>Conf. Interval: (-0.15, -0.03)  |
| There is a therapeutic approach that is successful for all children with autism.   | 3.11   | 1.45 | 3      | 2.92  | 1.74 | 3      | p < 0.05<br>Effect size: -0.10<br>Conf. Interval: (-0.17, -0.03)  |
| Inclusion in mainstream kindergartens and mainstream schools, as well as free therapy from professionals in the school or kindergarten (speech therapist, psychologist, special education teacher, etc.), are guaranteed for all children with autism. | 2.90   | 1.76 | 2      | 2.40  | 1.73 | 2      | p < 0.001<br>Effect size: -0.19<br>Conf. Interval: (-0.26, -0.12) |

because they lack experience, or because they attribute their child's peculiar behaviours to personality traits or the child's specific environment.

Regarding statements about stereotypic behaviors and social functioning, participants from Bulgaria placed greater importance on these symptoms during the process of parents turning to specialists. For participants from Bulgaria, the average value for the statement related to stereotypic movements falls between "neither agree nor disagree" and "somewhat agree," and there is a significant difference between the two countries. This probably means that participants from Bulgaria place greater importance on

stereotypies and other ritual behaviors, as well as on social dysfunctions, suggesting that society needs to make greater efforts to accept those who are different. Bulgaria has a small population, and behaviors that people can notice are probably more important for parents. However, the differences between the groups' responses across the two countries are not large, given the medians and the effect size.

Regarding the statement on speech and language dysfunctions, there is no significant difference in participants' responses between the two countries. The statement related to symptoms coming from speech and language difficulties was interesting, as these are

**Table 3: Comparisons between Two Groups of Participants from Greece - those who Work with Children with Developmental Disorders, and those who do not**

|  | I work with children with developmental problems or I am in training |      |        | I do not work with children with developmental problems or I am not in training |      |        | Kruskal-Wallis test   |
|--|--|------|--------|---|------|--------|---|
|  | mean   | SD   | median | mean  | SD   | median |   |
| <b>Statements related to Autism Diagnostic process</b>   |  |      |        |   |      |        |   |
| Most parents of children with autism turn to professionals because of symptoms related to speech and language dysfunctions.            | 4.66   | 1.32 | 5      | 4.30  | 1.55 | 5      | p < 0.05<br>Effect size: -0.12<br>Conf. Interval: (-0.23, -0.01)  |
| <b>Statements related to therapy and support for children with autism and their families</b>   |  |      |        |   |      |        |   |
| Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism. | 5.47   | 0.86 | 6      | 5.14  | 1.20 | 5.5    | p < 0.05<br>Effect size: -0.15<br>Conf. Interval: (-0.25, -0.06)  |
| All children with autism must be included in mainstream schools and kindergartens.   | 4.63   | 1.35 | 5      | 3.75  | 1.57 | 4      | p < 0.001<br>Effect size: -0.33<br>Conf. Interval: (-0.42, -0.21) |

not symptoms typical only of autism spectrum disorders. However, according to the individuals surveyed in both countries, this was a common parental complaint. Awareness of symptoms is important for diagnosing autism. Parents must be careful to distinguish their child from children of the same age [52], and early diagnosis affects prognosis [53-55].

In Section B, "Therapy and support for children with autism and their families", participants from Bulgaria and Greece differed when responding to the statement that children with autism can grow up to live independent lives. The responses of participants from Bulgaria are close to "somewhat agree", while those of participants from Greece are between "neither agree nor disagree" and "somewhat agree". Also, participants from Bulgaria are more positive about the statement that "Early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism". People's belief that early support can improve the prognosis is consistent with attempts at earlier diagnosis of autism. Some studies give a mean age of diagnosis of 43.18 months for children under 10 years of age [56]. Other authors state that autism diagnoses at age 2 show good stability in older children [57]. Early diagnosis is essential for overcoming symptoms. Improving awareness of autism among the community and professionals would certainly improve diagnosis and enable more children to participate in early

interventions [58, 59]. Broader knowledge about ASD may lead to a better prognosis for children with autism [60] and lower the age of diagnosis, thus leading to better treatment outcomes [61].

There is also a difference between the responses to the statement: "All children with autism must be included in mainstream schools and kindergartens", although the effect size and medians indicate that this difference between the two groups is not very large. We have included this statement because our clinical experience shows the difficulties parents in Bulgaria have with finding an appropriate school or kindergarten for children with autism. Participants from Bulgaria gave answers approaching "somewhat agree", while those from Greece gave answers approaching "neither agree nor disagree", with medians of 5 and 4, respectively. This is probably due to differences in the organization of services for children with autism spectrum disorders in the two countries, the greater accessibility of special schools in Greece, and society in Bulgaria's attempts to integrate children with autism into mainstream schools, supported by non-governmental and patient organizations. Unlike Greece, special kindergartens and schools are not common in Bulgaria, and children with autism can be included in special groups in mainstream schools or in private educational settings. Integration of children with autism into society is extremely important for their prognosis and future development, but in Bulgaria, there are not enough services to ensure the gradual

inclusion of children with autism in a peer environment. Furthermore, there is a shortage of specialists who could continuously support each child on site in this process. Providing assistance to parallel support teachers is also difficult.

Participants in both groups were not optimistic about the statement "There is a therapeutic approach that is successful for all children with autism". Participants from Bulgaria gave answers with a mean value corresponding to "disagree", while participants from Greece gave answers located between "disagree" and "strongly disagree". This generally corresponds to the difficulties specialists face in finding a definitive and certainly effective therapeutic approach for all children with autism.

Even more pessimistic were the responses to the last statement from this group. Again, a statistically significant difference was observed in participants' responses between the two countries. The responses of the participants from Bulgaria were located between "disagree" and "strongly disagree", whereas those from Greece were around "strongly disagree". This likely reflects people's understanding that these children are not guaranteed for all children and raises the question about societal attitudes towards providing social support for children with developmental disabilities and their families.

When we look at the results by age group and country, Bulgarian participants in the 16-20 and 21-30 age groups are less likely to support the statement that children with autism should be included in mainstream schools and kindergartens, and less likely to believe that such inclusion is ensured for every child. Meanwhile, among Greek participants, we observe that older people provide more support for statements related to the diagnostic process and the reasons parents turn to specialists. This probably indicates that older people have more knowledge about ASD in terms of symptoms, prevalence, and the most common complaints.

When comparing participants who worked with children with developmental problems or were in training with those who did not, significant differences were found across many statements in both Bulgaria and Greece. For Bulgarian participants, all statements except "All children with autism must be included in mainstream schools and kindergartens" showed significant differences. Professionals tended to be more supportive than non-specialists, except for the statement "Children with autism can grow up to live

independent lives, have jobs, earn income, and have families", with which non-specialists agreed more. This is probably due to the greater degree of confidence among professionals regarding their knowledge of autism symptoms, since the first three statements represent the most common symptoms of autism. This finding aligns with other studies, indicating that participants with a master's degree and those working in healthcare exhibited higher levels of knowledge about ASD [8]. Specialists are also more familiar with early interventions and inclusive education. However, lower support for the statement "Children with autism can grow up to live independent lives, have jobs, earn income, and have families" shows a more pessimistic view of the professionals. Public awareness of the opportunities that lie ahead for children with autism is essential because, thanks to such knowledge, people would be more supportive of such children. Finally, the positive attitude of nonprofessionals towards both statements related to the inclusion of children with autism in their peer groups and the favorable prognosis of the disorder shows an optimistic view and gives hope for the process of inclusive education.

Greek participants who worked with children with developmental problems or were in training scored higher on statements related to one of the reasons parents seek specialists, namely speech and language disorders. They also reported greater support for the statement that early interventions and therapies can lead to significant improvements in the social and communication skills of children with autism, consistent with the Greek service organization's strong emphasis on early diagnosis and support for children with autism. In fact, this is one of the differences between the two countries. Greek professionals also give more support to the statement that "*All children with autism must be included in mainstream schools and kindergartens*", which probably indicates that more awareness among society is needed when it comes to the prospects facing children with autism and their families.

## LIMITATIONS

Although the findings of this study are meaningful, several limitations should be noted. The study is based on a self-administered online survey, and we were not aware of potential difficulties in understanding the meaning and the context of some of the statements. Participation in the survey was not supervised by a researcher, so a possible limitation is the inability to track each participant to exclude potentially biased responses.

Another limitation of the present study is the use of a customized instrument to assess participants' knowledge and attitudes towards autism spectrum disorders, which limits full comparison with results from other studies.

## CONCLUSIONS

Knowledge and attitudes within the community about ASD symptoms, diagnosis, prevalence, organization of therapy, and support for families are crucial for the integration and inclusion of children within their peer groups and society. These factors could also influence the course and prognosis of the disorder. More often than not, the acceptance of children with autism within their peer environments depends on the reactions, attitudes, and perceptions of adults towards this process. These, in turn, are strongly influenced by adults' knowledge and understanding of autism symptoms, prevalence, diagnosis, and the support that children's families receive.

Professionals must guide the information that people receive from the media, e.g., from social networks, popular sites, articles, and books, in the proper direction, so that the general public can develop a good understanding of developmental disorders. This knowledge can then be used in everyday life and passed on to children, who will be the main carriers of future inclusion.

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## AUTHOR CONTRIBUTIONS

Conceptualization, M.S.; methodology, M.S.; formal analysis, M.S. and I.I.; investigation, M.S., P.M., A.P.; resources, M.S.; data curation, M.S. and I.I.; writing-original draft preparation, M.S.; writing-review and editing, M.S.; visualization, M.S. All authors have read and agreed to the published version of the manuscript.

## INSTITUTIONAL REVIEW BOARD STATEMENT

This study was conducted in accordance with recognized ethical standards and was approved by the

institutional ethics committee. Specifically, approval was granted by the Ethics Committee of the Department of Health Care and Social Work (Protocol No. 121, dated 12 December 2023). The survey was administered online, conducted anonymously, and all participants were informed of the study procedures and participated voluntarily.

## CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

## SUPPLEMENTAL MATERIALS

The supplemental materials can be downloaded from the journal website along with the article.

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