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RESEARCH

Exploring Teacher Perceptions and Influencing Factors in the Inclusive Education of Students with Autism: A Comprehensive Analysis

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Abstract

Emphasizing the critical need to recognize distinctive learning requirements, the study investigates practical applications of inclusiveness within mainstream classrooms. The objective is to explore, observe, and analyze Greek teachers' perceptions and attitudes regarding inclusive education for children with ASD. Using a quantitative approach, the study employed questionnaires distributed across various regions in Greece to comprehensively capture the variables influencing teachers' attitudes. Results highlight that teacher professional development, resource availability, and institutional support are crucial factors distinguishing successful from unsuccessful inclusive education initiatives in Greece. These elements significantly shape teachers' mindsets and their implementation of interventions within mainstream classrooms for children with ASD. Understanding the challenges and specific needs in Greek education is vital for designing appropriate, inclusive practices. This research contributes to the broader discourse on inclusive education, serving as a reference for future inquiries and policymaking in culturally and educationally diverse settings.

Keywords Inclusive education · Autism spectrum disorder · Teacher perceptions · Greek education system · Professional development · Educational policy

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1 Introduction

1.1 Research Background

The integration of inclusive education within the global educational framework is a very important trend that has been evolving with time. It is deeply entrenched into the broader human rights movement, which emphasizes on equality, well-being, and removal of barriers for equal access and participation in societal structures [1]. In such cases as education for students with autism spectrum disorder (ASD), this approach becomes particularly important as inclusion is at the heart of their academic and social development [2].

In Greece, there have been significant policy changes in the education system towards embracing inclusive education. As an example of this important legislation, Law No 3699/2008 mandates mainstream schools to include students with special educational needs [3]. Nevertheless, successful inclusive practices are not only based on established policies but also on teacher's attitudes and beliefs. Teachers have a vital role to play in implementing policy decisions related to inclusion in an educational setup [4]. The opinions, attitudes, and classroom practices of teachers are critical determinants that affect whether or not students with ASD receive quality education [5].

Earlier studies have identified professional training, experience, and resource availability as factors influencing teacher attitudes towards inclusive education [6]. Educators' concerns about handling inclusion classrooms in Greece are notable due to lack of training and resources being considered as major challenges [7]. Consequently, it is important to analyze these perceptions among Greek teachers so that areas where gaps exist can be identified for the purposes of making effective inclusive programs. Moreover, teachers enact a pivotal role in providing essential support for students with math learning disabilities (MLDs) [8] as well as autism spectrum disorder (ASD), particularly in designing and implementing tailored educational interventions [9]. This role becomes even more critical within the realm of STEM activities, where, despite exhibiting a high interest, students with autism are often erroneously excluded. Consequently, the development of teachers' competencies and the early design of targeted educational interventions become of heightened interest and significance [9]. These endeavors not only contribute to the creation of inclusive learning environments but also serve as foundational elements in fostering the active engagement of students with autism in STEM studies [10, 11]. Addressing these challenges is essential for the establishment of equitable educational spaces that accommodate the diverse learning needs of students with ASD, especially within STEM disciplines.

This study aims at conducting a comprehensive analysis of Greek teachers' perceptions on inclusive education for autistic learners. Greece possesses both traditional and modern educational philosophies simultaneously [12]; therefore, investigating this issue from within these cultural parameters would offer insights applicable to other similar settings having cultural and educational links. This is particularly relevant considering the increasing global prevalence rate of ASD

[13]. Thus, teachers must be equipped with the requisite competencies needed to successfully handle inclusion classrooms if they want to develop the whole person of students with ASD.

1.2 The Greek Primary Education System

The Greek primary education system serves as the foundational stage of compulsory education for children aged 4 to 12. It is organized into two cycles: kindergarten, known as "nipiagogio," and primary school, referred to as "dimotiko." The first cycle, spanning ages 4 to 6, aims to help children develop physically, emotionally, mentally, and socially. Building on this foundation, the second cycle, for ages 6 to 12, contributes to multifaceted mental and physical development. Moreover, emphasizes core subjects such as the Greek language, mathematics, science, social studies, and physical education. With a commitment to providing a well-rounded education, the primary system employs interactive teaching methods to engage young learners. Student progress is regularly assessed, and promotion to the next grade is determined by performance. The system not only focuses on academic excellence but also aims to instill fundamental skills and knowledge essential for future educational pursuits. Additionally, educational inclusion and integration represent pivotal principles within the Greek educational system, aiming to ensure equal opportunities and access to education for all students, irrespective of their idiosyncrasies. The main organizational methods include the following:

i. Mainstreaming: The integration of students with special educational needs into regular classes, utilizing adapted teaching approaches and specific support measures.
ii. Special classes and sections: In certain instances, there exist special classes or sections providing specialized support for students with more severe needs.
iii. Special programs and services: Programs offering specialized services, such as speech therapy and occupational therapy, tailored to the needs of students.
iv. Specialized educators: The presence of educators with specialization to support children with special needs.
v. Individualized education plans: Certain students may require individualized education plans customized to their needs, with the aim of better aligning education with their specific characteristics.

Overall, the objective is to establish an environment that is open, inclusive, and responsive to the needs of all students, thereby promoting inclusion and integration at all levels of education.

1.3 Statement of the Problem

Inclusive education has been identified as the most moral and effective way to teach children with special needs such as autism spectrum disorder [2]. The process of implementing inclusive education is complex, involving challenges at the

systemic level and individual beliefs and attitudes [14]. However, issues such as inadequate resources, lack of teacher training, and different views about inclusion have hindered its efficiency notwithstanding policies that promote including every child in school like Greece's Law 3699/2008 [3]. This discord necessitates an empirical study of the realities on the ground because there is a mismatch between policy and practice [7].

Teachers play a crucial role in successful awareness, understanding, and implementation of inclusive education systems [4]. Their perceptions, attitudes, and practices significantly influence educational experiences for mainstream students with ASD [5]. Nevertheless, there is no specific research conducted on how Greek teachers perceive inclusion for students with autism. Therefore, it is important to analyze these perceptions considering that Greece has a unique environment incorporating traditional teaching philosophies into contemporary approaches [12].

Additionally, an extensive examination of teachers' readiness and perspectives towards inclusive education becomes even more necessary because of the increasing cases of ASD diagnoses both globally and within Greece [13]. This study aims at filling this gap by analyzing Perceptions of Greek Teachers on Autism Inclusion Factors: A Problem Prevalent across Legislative, Individual, and Societal Spheres.

2 Literature Review

2.1 Overview of Inclusive Education and Autism Spectrum Disorder (ASD)

2.1.1 The Evolution and Essence of Inclusive Education

Inclusive education is a transformative idea in modern systems of education, and it is an essential aspect of the global educational equity and quality agenda [1]. This approach has its roots in advocating for equal opportunities for all students, including those suffering from autism spectrum disorder (ASD) in the mainstream educational settings. By doing this, it works towards removing learning barriers and promoting an environment where all students learn together regardless of their abilities or disabilities [2]. This change is not only a policy issue but also a greater societal shift towards inclusivity and diversity.

Since inclusive education is the concept of accommodating all learners; it has its hardships as well as prospects. One great difficulty is that diverse needs and abilities are supposed to be met within one classroom. Nevertheless, this diversity also provides opportunities for educators and learners to embrace a broader range of learning styles and experiences thereby creating an environment of mutual understanding and respect [1]. Different regions and countries have different policies about the development and implementation of inclusive education. The effectiveness of these policies is often determined by factors such as support from the government, resource allocation as well as community engagement. This variability points to why specific strategies have to be applied in supporting inclusive education practices [2].

2.1.2 Autism Spectrum Disorder in Educational Contexts

Autism spectrum disorder (ASD) manifests itself variably through social communication challenges as well as repetitive behavior or interests [13]. ASD poses serious educational implications that require specific strategies as well as interventions to meet the special needs of these learners. For children with ASD, inclusion involves specialized support, modifying teaching methods, as well as creating a learning environment that supports their unique talents and difficulties [5]. For teachers to make use of inclusive practices effectively, they need to know how ASD affects learning and socializing.

The development of educational technology, however, has been instrumental in improving learning opportunities for students with ASD. In this regard, technological tools, such as interactive software, and assistive devices are crucial in supporting the specific learning needs of these children providing them with tailored learning experiences that are interactive and engaging [13].

Social and emotional learning for students with ASD: It is not only about academic achievement but inclusive education for students with ASD also stresses social and emotional learning. The recognition by educators on the significance of social skills development and emotional regulation among students with ASD is meant to foster their overall wellbeing and ease integration into the school community [5].

2.1.3 Inclusive Education within the Greek Educational System

The promulgation into law of Act 3699/2008 was a significant milestone in the integration process for students with disabilities such as autism spectrum disorder (ASD) into regular schools within Greece [3]. Notwithstanding these legislative strides, there are obstacles to the implementation of inclusive education frontiers in Greece. These include scarce resources, untrained teachers, and traditional methodologies mingling with inclusive ones [7]. Understanding how these factors come into play when implementing the effective application of inclusive education is demanding for the Greek educational system.

The move to inclusive education in Greece has not been a sudden event; it has taken time. During this phase, both progressive and regressive approaches have emerged. In so doing, significant changes in instruction methodologies, classroom management, and educational infrastructure have become necessary making them implications of successful inclusion of students with special needs [3].

Within Greek society, the significance of the roles that the community and parents play in inclusive education has been on the rise. It is very important to involve families and larger communities in the teaching/learning processes of ASD children so as to create a supportive inclusive environment for them [7].

2.1.4 Role of Teachers in Inclusive Education

Inclusive education cannot succeed without the active involvement of teachers as educational policy implementers [4]. Teachers are the executors of educational policies in classrooms. Their attitude towards inclusive practices and readiness

to embrace such practices is important for facilitating the learning experiences of autistic students [5]. However, teacher training for running inclusive classrooms in Greece is limited, pointing out that professional development targeted at this issue should be enhanced [6]. Besides, teachers often encounter obstacles that prevent them from effectively implementing inclusive education, although it is recognized to be of great importance. The lack of adequate training, few resources, and large class sizes are such barriers that can hinder teachers from paying individualized attention as well as support to ASD students [4]. Collaborative approaches are emerging trends in inclusive education. Teachers cooperate with special educators, therapists, and other professional experts to develop and implement effective techniques for including students with ASD in regular classrooms [6].

2.1.5 Identifying the Research Gap

Although there is a lot of research on inclusive education, little of it focuses on teachers' perceptions about including children suffering from ASD given the Greek context [12]. The present study aims at closing this gap by investigating Greek teachers' perceptions and readiness to teach students with autism spectrum disorder (ASD) in normal schools. It is hoped that these findings will assist in formulating policies as well as practices thus enhancing inclusive education for ASD students in Greece and other similar contexts [14].

3 Research Methodology

3.1 Research Questions

Behind this research are four research questions, each one of them crafted meticulously and focusing on different aspects of teachers' attitudes towards inclusive education.

- How are teacher demographics related to their perceptions towards students with mild to moderate disabilities?
- What impact do teacher demographics have on beliefs regarding the effectiveness of integration?
- Is there any connection between teachers' demographics and their views on professional duties and functions in inclusive education?
- What is the link between teachers' perception of children with disabilities, their views about the efficacy of inclusion as well as their perception about professional responsibilities and roles? [15].

These questions are formulated so as to provide a structured and comprehensive framework for examining the multiple dimensions of teachers' attitudes and beliefs in the case of inclusive education.

3.2 Research Design

This is a quantitative type of research methodology, which examines Greek teachers' attitudes about the inclusion of autistic students in Mainstreamed Education. The choice of a quantitative methodology is propelled by its precision in data collection, analysis, and interpretation that allows generalizations to a wider population. This is more useful in educational research where the assessment of trends, patterns, and attitudes across diverse demographics is mandatory.

Research design is an essential signifier desired in this study and focuses on a quantitative approach in understanding broad patterns, relationships, and trends within the educational context. Quantitative research, being known for the objective view, uses measurement and statistical analysis that will allow these results to be generalized to other populations. This methodology is highly appropriate especially for the current set of research, wherein the variations and differences in attitudes of teachers across the various age groups or geographical regions have to be looked into, analyzed, and reported. This gives a complete detail of the prevailing attitudes in the educational arena with regard to inclusive education.

This research method includes the research design, theoretical background, sampling methods, data collection instruments, and procedures, as well as a comprehensive plan for data analysis. By capitalizing on the strengths of quantitative research, this research is expected to provide value in terms of insights about the attitudes of Greek teachers towards inclusive education hence contributing immensely towards the discourse on educational inclusivity for students with Autism [16].

3.3 Instrumentation

The primary instrument for collecting data in this study will be a well-structured questionnaire. This specific questionnaire was developed in order to address particular objectives of the study. It contains closed-ended questions presented using a Likert scale that ranges from 1 (strongly disagree) to 7 (strongly agree). This format is appropriate because it makes it possible to collect measurable, comparable, and analyzable data necessary for achieving the purpose of this study [17].

The appended questionnaire is a comprehensive tool to gauge teachers' attitudes towards the inclusion of students with autism spectrum disorders (ASD) in mainstream classrooms. It comes subdivided into two modules: Module A where both demographics and elements of services were focused, while the second module being the "Teachers' Attitude Scale towards Inclusion" (TATIS).

Module A has 12 questions which are aimed at capturing demographic information and specifically probing how the backgrounds in teaching a variety of students including ASD students have influenced attitudes and experiences. This section is very important since it assists in giving the background and the kind of stature that people have and which may significantly influence their attitudes and their experiences.

Module B includes 14 items, which are formulated to assess teachers' attitudes towards a variety of elements of inclusion on the basis of responses evaluated by a 7-point Likert scale. The assessment in this scale includes various aspects of the professional role, perceptions of collectivity, and competence in full participation as contributors together with other normal teaching professionals. The items are formulated to record response frequencies which span the whole range from strong agreement to strong disagreement.

The total items constitute 26 in the questionnaire, hence offering an impactual and extensive understanding of teachers' perspectives. Accordingly, it fails to state whether this questionnaire is an original creation or adapted from existing tools. If it is adapted proper citation and acknowledgement of the original author(s) is called for. Additionally, the research should make it clear whether the TATIS is a tested scale or modification done for the sake of this particular research.

On the review of the analysis and validity of the questionnaires, several areas in which the research questions are derived from should be narrowed to specific independent variables. These are demographic characteristics such as the age, the years of service, or the level experience with ASD among others. Understanding this variable is important in analyzing how different factors are likely to affect the attitudes among teachers.

Further, it should also be tackled whether the questionnaire has theoretically sound factors or dimensions which already are fitted under factor analysis. If previous studies have undergone the questionnaire or the TATIS scale in factor analysis, so much reference can be done in order to prove the structure and use of this instrument.

Lastly, there was no indication of the validation and reliability of the questionnaire. For academic rigor, exploratory factor analysis needs to be conducted and reported for confirmation purposes regarding the underlying structure of the attitude measures. Moreover, it provides the reliability measures such as Cronbach's alpha and omega for each dimension or the overall scale. These statistics are vital to ensure that the constructs, which are being measured, are measured reliably by items in the questionnaire and hence could be relied upon and generalized to a larger population.

3.4 Sampling Technique

Due to constraints imposed by the pandemic and the need for efficient data collection and selective sampling, a non-random approach will be employed. This technique involves choosing a sample which accurately reflects the larger population of teachers in Greece. It ensures diversity in terms of perspectives and experiences necessary for conducting this study. The total sample size was predetermined at 280 teachers who are considered sufficient enough statistically speaking concerning coverage adequacy aimed during the research process [18].

Demographic analysis based on gender shows that out of 280 participating educators, a large majority were females comprising 87.1%, while males were just 12.9%. This distribution of the gender will be vital for framing subsequent attitudes found in the study and experience of teachers within the educational set-up.

Age demographics proved about the dominance of senior professionals with 30% of the participants falling within 51–60 years. The subsequent age groups of 41–50 years and 31–40 years formed 28.6% and 25.7% of the sample, respectively. Only 14.3% were younger educators under the age group between 21 and 30 years and as low as 1.4% belonged to this category of educators who were above 61 years. Given this kind of wider range of ages, it has the advantage that it would span a wider range of experience which might very well influence their ideas and practice about inclusive education.

As for years of service, the data revealed that the most part of the respondents, amounting to 38.6%, had experience of more than 20 years which means that they have accumulated great professional knowledge and practice. Proportionately represented other experience ranges therefore adding depth to understanding how practitioners' experiences might correlate to their attitudes towards inclusion.

The teaching environment also varied with 54.3% operating within major urban centers such as Athens or Thessaloniki. The remaining were taught in urban, semi-urban, and rural. The geographical distribution gives a crucial background towards the understanding of attitudes on autism inclusion in reflection to different learning environments as well as community contexts.

Figure 1 shows that most teachers had 20 years of experience ($N = 108$, 38.6%). In total, 20% of the participants had 16–20 years of experience, 17.1% of the participants had 6–10 years of experience, 15.7% of the participants had 0–5 years of experience, and 8.6% of the participants had 11–15 years of experience.

Figure 2 shows that most participants teach in a large urban area (Athens–Thessaloniki) ($N = 152$, 54.3%). In total, 22.9% of participants teach in an urban area (> 10,000), 12.9% of participants teach in a semi-urban area (2000–10,000), and 10% of them teach in a rural area (< 2000).

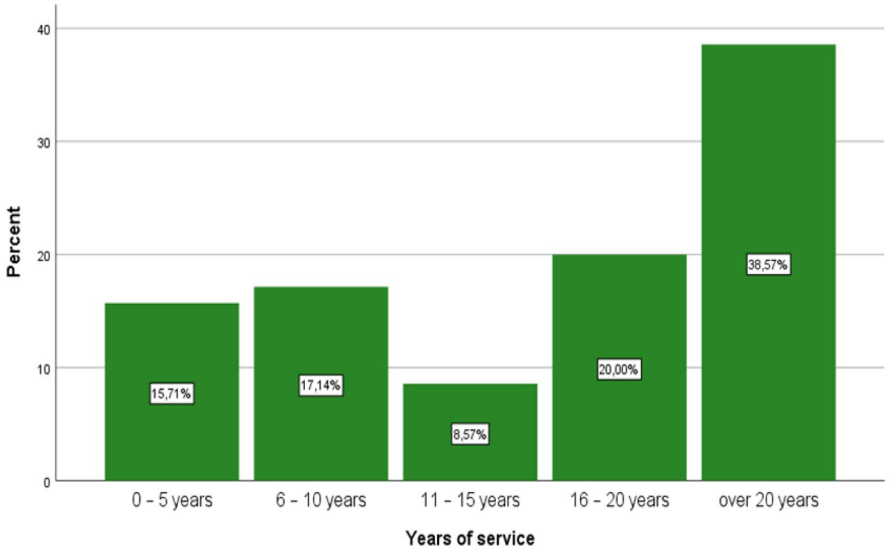

Fig. 1 Years of service

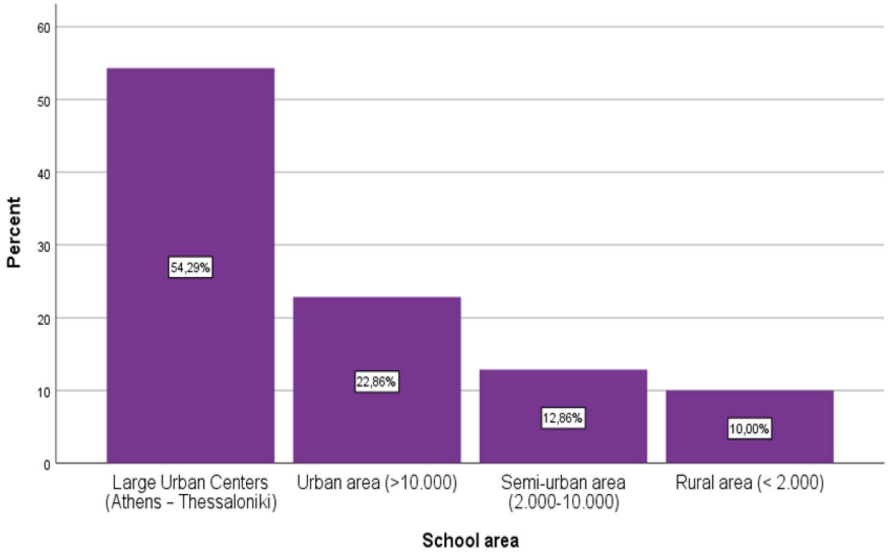

Fig. 2 School area

Figure 3 shows that most teachers do not work in a special school ($N = 252$, 90%) and 10% of them work in a special school.

Figure 4 shows that most teachers reported that more than 10 students diagnosed with special needs and/or disabilities attend the classroom ($N = 88$, 31.4%). In total, 25.7% of teachers reported that 6–10 students diagnosed students with special needs and/or disabilities attend the classroom, 22.9% of teachers reported that 4–5 students diagnosed students with special needs and/or disabilities attend

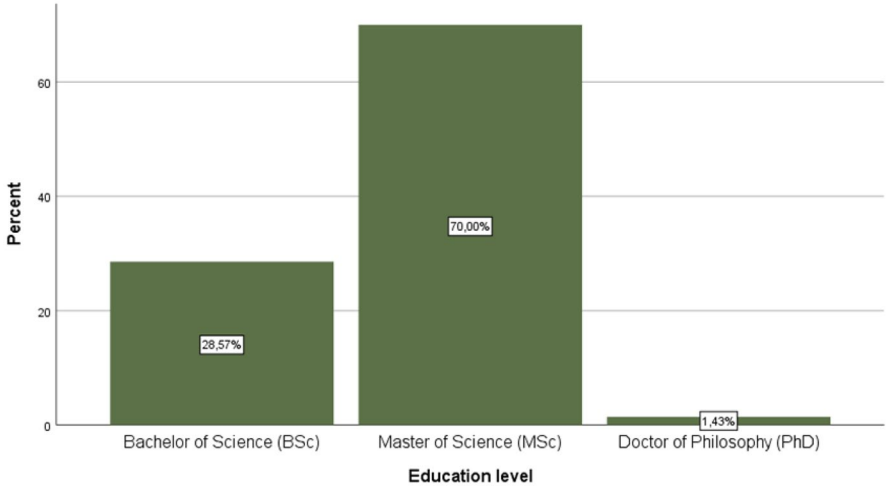

Fig. 3 Working environment

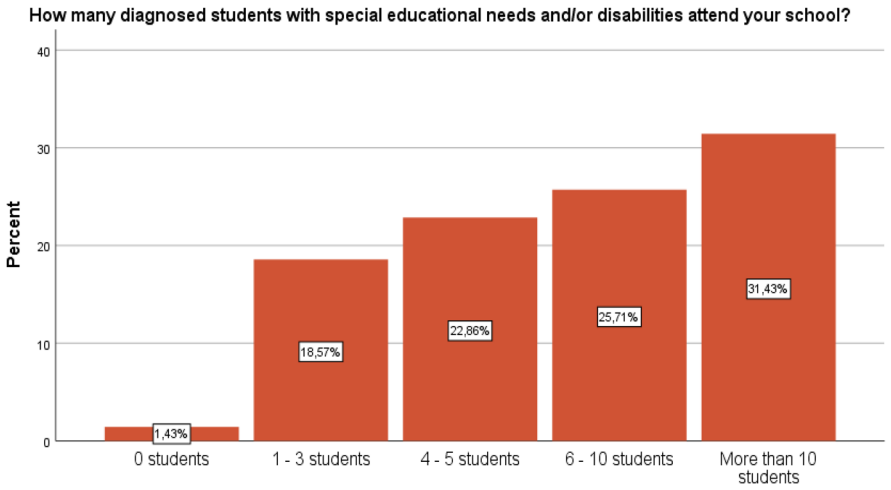

Fig. 4 How many diagnosed students with special educational needs and/or disabilities attend your school?

the classroom, 18.6% of teachers reported that 1–3 students diagnosed students with special needs and/or disabilities attend the classroom, and 1.4% of teachers reported that in the classroom no diagnosed student with special needs and/or disabilities attends the classroom.

Figure 5 shows that most participants reported attending a seminar to support students with ASD-HFA ($N = 29$, 41.4%). In total, 40% of teachers reported that they have not received any training or education to support students with

	Frequency	Percent
Undergraduate education	10	14.3%
Postgraduate education	20	28.6%
Doctoral education	0	0%
Over 400 hours of training	7	10%
Seminar	29	41.4%
No	28	40%

Fig. 5 Types of education or training to support students with ASD-HFA

	Frequency	Percent
Yes. In a general school, class teacher	37	52.9%
Yes. In a general school, Parallel support	13	18.6%
Yes. In a special school	11	15.7%
Yes. In Diagnostic Assessment Counseling and Support Centers	4	5.7%
No	20	28.6%

Fig. 6 Specific experience of working or educating students with ASD-HFA

ASD-HFA, 28.6% of participants reported holding a PhD to support students with ASD-HFA, 14.3% of participants reported holding a master's degree to support students with ASD-HFA, and 10% of participants reported having completed over 400 h of special education to support students with ASD-HFA.

Figure 6 shows that most teachers reported having specific experience of working or training students with ASD-HFA since they are teachers in a general school ($N=37$, 52.9%). In total, 28.6% of teachers reported that they have no specific experience of working or educating students with ASD-HFA; 18.6% of teachers have specific experience of working or educating students with ASD-HFA, since they are parallel support teachers in a general school; 15.7% of teachers have specific experience of working or educating students with ASD-HFA, since they are teachers in a special school; and 5.7% of teachers have specific experience of working or education students with ASD-HFA, since they work in Diagnostic Assessment Counseling and Support Centers.

Figure 7 shows that most teachers reported that their knowledge of legislation and policies related to people with special educational needs and/or disabilities is moderate ($N=104$, 37.1%). In total, 24.3% of teachers reported that their knowledge of legislation and policies related to people with special educational needs and/or disabilities is very little, 21.4% of teachers reported that their knowledge of legislation and policies related to people with special educational needs and/or disabilities is good, 11.4% of teachers reported that they have no knowledge of legislation and policies related to people with special educational needs and/or disabilities, and 5.7% of teachers reported that their knowledge of legislation and policies related to people with special educational needs and/or disabilities is very good.

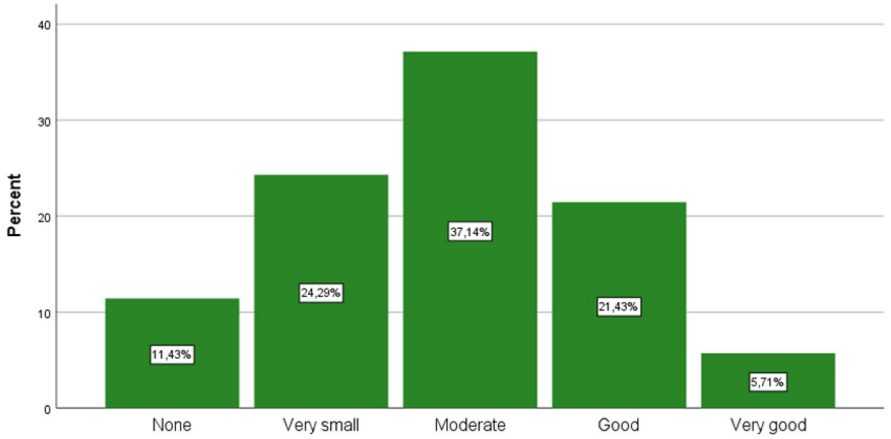

Fig. 7 Their knowledge of legislation and policies related to people with special educational needs and/or disabilities is

3.5 Data Collection Procedure

Data collection will be done electronically as it adheres to pandemic-related safety guidelines as well as ensuring wider participant inclusion. Informed consent facilitated through adequate information sharing would be achieved by the informed consent and confidentiality aspects of the study. The online method of administering questionnaires will be convenient for the participants while also making it possible to efficiently collect information [19].

3.6 Ethical Considerations

Ethical considerations are central to this research. Key principles such as informed consent, anonymity and confidentiality, and exclusive use of data for academic purposes have been strictly followed. The study was conducted in line with ethical guidelines provided by the American Psychological Association [20] to maintain high standards of integrity and ethical soundness in conducting the research.

3.7 Data Analysis Plan

The statistical package employed in analyzing data is SPSS 23.0 which is a robust software. This process of analysis will entail both descriptive statistics as well as inferential statistics. Descriptive statistics offer an insightful overview of sample characteristics, while inferential statistics are used to examine relationships and differences posed by research questions such as *t*-tests, ANOVA, and Pearson correlation test [21]. Such a comprehensive analytical approach is necessary so as to give a detailed examination of the data thereby providing deeper insights into Greek teachers' attitudes towards the inclusion of autistic students in mainstream schools.

Table 1 ANOVA control between teachers' ages and teachers' attitudes towards inclusion of students with autism

		Sum of squares	df	Mean square	*F*	Sig.
Teacher perceptions of students with mild to moderate disabilities	Between groups	60.051	4	15.013	.445	.776
	Within groups	9277.321	275	33.736		
	Total	9337.371	279			
Beliefs about the efficacy of inclusion	Between groups	278.305	4	69.576	3.274	.012
	Within groups	5844.038	275	21.251		
	Total	6122.343	279			
Perceptions of professional roles and functions	Between groups	180.190	4	45.048	2.797	.026
	Within groups	4429.010	275	16.105		
	Total	4609.200	279			

4 Analysis of the Findings

The ANOVA control between teachers' age and teachers' attitudes towards the inclusion of students with autism is depicted below. Table 8 shows that there is a statistically significant difference between teachers' age and their beliefs about the effectiveness of the inclusion of students with autism (F4, 279 = 3.274, $p < 5\%$), where teachers aged 51–60 years agreed to a greater extent that students with autism have more effective integration, compared to those aged 31–40 years (M.D. = −2.43, $p < 5\%$).

Table 1 also shows that there is a statistically significant difference between teachers' age and perceptions of teachers' professional roles and functions (F4, 279 = 2.797, $p < 5\%$), where teachers aged 31–40 have a higher perception of professional roles and functions compared to teachers aged 21–30 years (M.D. = −2. 3, $p < 5\%$).

Table 2 shows the ANOVA control between years of service of teachers and teachers' attitudes towards the inclusion of students with autism. It shows that there is a statistically significant difference between years of service for teachers and teachers' perceptions of students with mild to moderate disabilities (F4, 279 = 4.413, $p < 5\%$), where teachers who have years of service from 11 to 15 have more positive

Table 2 ANOVA control between years of service of teachers and teachers' attitudes towards inclusion of students with autism

		Sum of squares	df	Mean square	*F*	Sig.
Teacher perceptions of students with mild to moderate disabilities	Between groups	563.230	4	140.807	4.413	.002
	Within groups	8774.142	275	31.906		
	Total	9337.371	279			
Beliefs about the efficacy of inclusion	Between groups	641.745	4	160.436	8.050	.000
	Within groups	5480.598	275	19.929		
	Total	6122.343	279			
Perceptions of professional roles and functions	Between groups	460.240	4	115.060	7.626	.000
	Within groups	4148.960	275	15.087		
	Total	4609.200	279			

perceptions of the inclusion of students with autism compared to those who have years of service from 0 to 5 years (M.D. = −4.4, $p<5\%$), from 16 to 20 years (M.D. = −4.4, $p<5\%$) and over 20 years (M.D. = −4.1, $p<5\%$). Also, a statistically significant difference between teachers' years of service and teachers' beliefs about the effectiveness of inclusion of students with autism (F4, 279 = 8.050, $p<5\%$) can be observed, where teachers who had years of service over 20 years agreed to a greater extent that students with autism have more effective integration, compared to those who had 6–10 years of service (M.D. = −2.32, p<5%), 11–15 years of service (M.D. = −4.91, $p<5\%$), and 16–20 years of service (M.D. = −2.72, $p<5\%$). Finally, Table 2 shows that there is a statistically significant difference between the years of service of teachers and the perceptions of teachers' professional roles and functions (F4, 279 = 7.669, $p<5\%$), where teachers who have had years of service from 0 to 5 years have a lower degree of perception of professional roles and functions compared to other teachers.

Table 3 shows the ANOVA control between teacher school districts and teachers' attitudes towards the inclusion of students with autism. It shows that there is a statistically significant difference between teachers' school area and teachers' perceptions of students with mild to moderate disabilities (F3, 279 = 3.880, $p<5\%$), where teachers who taught in large urban areas (Athens–Thessaloniki) have better perceptions of students with mild to moderate disabilities compared to teachers who teach in rural areas (M.D. = −2.9, $p<5\%$). Finally, Table 3 shows that there is a statistically significant difference between the area of the teachers' school and the perceptions of teachers' professional roles and functions (F3, 279 = 5.443, $p<5\%$), where teachers who taught in large urban areas (Athens–Thessaloniki) have better perceptions of teachers' professional roles and functions compared to teachers who teach in urban areas (M.D. = −2.02, $p<5\%$) and in rural areas (M.D. = −2.32, $p<5\%$).

Table 4 presents the *t*-test between teachers' specialty and teachers' attitudes towards the inclusion of students with autism. It shows that there is a statistically significant difference between teacher specialization and teachers' perceptions of students with mild to moderate disabilities ($t278 = 3.625$, $p<5\%$), where teachers who were in general education had better perceptions of students with mild to moderate disabilities ($M = 21.3$, S.D. = 5.62) compared to special education teachers

Table 3 ANOVA control between teacher school district and teachers' attitudes towards inclusion of students with autism

		Sum of squares	df	Mean square	*F*	Sig.
Teacher perceptions of students with mild to moderate disabilities	Between groups	377.904	3	125.968	3.880	.010
	Within groups	8959.468	276	32.462		
	Total	9337.371	279			
Beliefs about the efficacy of inclusion	Between groups	98.208	3	32.736	1.500	.215
	Within groups	6024.135	276	21.827		
	Total	6122.343	279			
Perceptions of professional roles and functions	Between groups	257.472	3	85.824	5.443	.001
	Within groups	4351.728	276	15.767		
	Total	4609.200	279			

Table 4 *t*-test between teachers' specialty and teachers' attitudes towards the inclusion of students with autism

	Speciality	*N*	Mean	Std. deviation	t	df	Sig.
Teacher perceptions of students with mild to moderate disabilities	General education teacher	216	21.3	5.62	3.625	278	0.000
	Special education teacher	64	18.4	5.81			
Beliefs about the efficacy of inclusion	General education teacher	216	18.4	4.69	−1.360	278	0.175
	Special education teacher	64	19.3	4.64			
Perceptions of professional roles and functions	General education teacher	216	9.4	4.18	4.241	278	0.00
	Special education teacher	64	7.1	2.99			

Table 5 ANOVA control between teachers' educational level and teachers' attitudes towards inclusion of students with autism

		Sum of squares	df	Mean square	*F*	Sig.
Teacher perceptions of students with mild to moderate disabilities	Between groups	6.682	2	3.341	.099	.906
	Within groups	9330.690	277	33.685		
	Total	9337.371	279			
Beliefs about the efficacy of inclusion	Between groups	206.343	2	103.171	4.831	.009
	Within groups	5916.000	277	21.357		
	Total	6122.343	279			
Perceptions of professional roles and functions	Between groups	100.727	2	50.363	3.094	.047
	Within groups	4508.473	277	16.276		
	Total	4609.200	279			

($M = 18.4$, S.D. = 5.81). Finally, Table 4 shows that there is a statistically significant difference between teachers' specialization and perceptions of teachers' professional roles and functions ($t278 = 4.241$, $p < 5\%$), where general education teachers have better perceptions of teachers' professional roles and functions ($M = 9.4$, S.D. = 4.18) compared to special education teachers ($M = 7.1$, S.D. = 2.99).

Table 5 shows the ANOVA test between teachers' educational attainment and teachers' attitudes towards the inclusion of students with autism. It shows that there is a statistically significant difference between teachers' educational attainment and teachers' beliefs about the effectiveness of integration of students with autism (F2, 279 = 4.831; $p < 5\%$), where teachers with a bachelor's degree agreed to a greater extent that students with autism have more effective integration than master's degree holders (M.D. = − 1.64, $p < 5\%$). Finally, Table 5 shows that there is a statistically significant difference between teachers' educational level and perceptions of teachers' professional roles and functions (F2, 279 = 3.094, $p < 5\%$), where teachers who held a PhD have a greater perception of professional roles and functions than those who held a Master's degree (M.D. = − 5.04, $p < 5\%$).

Table 6 shows the *t*-test between teachers' attitudes towards the inclusion of students with autism and whether they work in a special school. It shows that there is a statistically significant difference between whether they work in a special school and

Table 6 *t*-test between teachers' attitudes towards the inclusion of students with autism and whether they work in a special school

	Do you work in a special school?	*N*	Mean	Std. deviation	*t*	df	Sig.
Teacher perceptions of students with mild to moderate disabilities	Yes	28	17.1	4.05	− 3.425	278	0.001
	No	252	21.0	5.82			
Beliefs about the efficacy of inclusion	Yes	28	19.1	5.15	0.629	278	0.530
	No	252	18.6	4.64			
Perceptions of professional roles and functions	Yes	28	9.6	6.11	0.921	278	0.358
	No	252	8.8	3.78			

Table 7 ANOVA screening among the number of children diagnosed with autism attending school and teachers' attitudes towards inclusion of students with autism

		Sum of squares	df	Mean square	*F*	Sig.
Teacher perceptions of students with mild to moderate disabilities	Between groups	209.480	4	52.370	1.578	.180
	Within groups	9127.891	275	33.192		
	Total	9337.371	279			
Beliefs about the efficacy of inclusion	Between groups	348.910	4	87.228	4.155	.003
	Within groups	5773.433	275	20.994		
	Total	6122.343	279			
Perceptions of professional roles and functions	Between groups	71.832	4	17.958	1.088	.363
	Within groups	4537.368	275	16.500		
	Total	4609.200	279			

teachers' perceptions of students with mild to moderate disabilities ($t278 = -3.425$, $p < 5\%$), where teachers not working in a special school had less better perceptions of students with mild to moderate disabilities ($M = 21$, S.D. = 5.82) compared to teachers working in a special school ($M = 17.1$, S.D. = 4.05).

Table 7 shows the ANOVA test between the number of children diagnosed with autism attending school and teachers' attitudes towards the inclusion of students with autism. It shows that there is a statistically significant difference between the number of children diagnosed with autism attending school and their beliefs about the effectiveness of integration of students with autism (F4, 279 = 4.155, $p < 5\%$), where teachers who reported having more than 10 students diagnosed with autism attended their school agreed to a lesser extent that students with autism had more effective integration, compared to teachers who reported that their school had 4–5 students diagnosed with autism (M.D. = 2.18, $p < 5\%$) and 6–10 students diagnosed with autism (M.D. = 2.07, $p < 5\%$).

Table 8 presents the *t*-test check between teachers' attitudes towards the inclusion of students with autism and whether they have participated in seminars for the integration of students with special educational needs and/or disabilities. It shows that there is a statistically significant difference between teachers' participation in seminars on the integration of students with special educational needs and/or disabilities and teachers' perceptions of students with mild to moderate disabilities ($t278 = -2.090$, $p < 5\%$), where teachers who have not participated in seminars on the inclusion of students with special educational needs and/or disabilities have less positive perceptions of the inclusion of students with autism ($M = 21.5$, S.D. = 6.25) compared to those who have participated in seminars on the inclusion of students with special educational needs and/or disabilities ($M = 20.0$; S.D. = 5.37).

Table 8 also shows that there is a statistically significant difference between teachers' participation in seminars on the inclusion of students with special educational needs and/or disabilities and their beliefs about the effectiveness of integration of students with autism ($t278 = 6.921$, $p < 5\%$), where teachers who had participated in seminars on the inclusion of students with special educational needs and/or disabilities agreed to a lesser extent that students with autism have more effective

Table 8 *t*-test check between teachers' attitudes towards the inclusion of students with autism and whether they have participated in seminars for the inclusion of students with special educational needs and/or disabilities

	Have you participated in seminars on inclusion of students with special educational needs and/or disabilities?	N	Mean	Std. deviation	t	df	Sig.
Teacher perceptions of students with mild to moderate disabilities	Yes	164	20.0	5.37	−2.090	278	0.037
	No	116	21.5	6.25			
Beliefs about the efficacy of inclusion	Yes	164	20.1	4.40	6.921	278	0.000
	No	116	16.5	4.24			
Perceptions of professional roles and functions	Yes	164	8.3	4.05	−2.891	278	0.004
	No	116	9.7	3.96			

integration ($M = 20.1$, S.D. = 4.40), compared to those who had not participated in seminars on the integration of students with special educational needs and/or disabilities ($M = 16.5$, S.D. = 4.24).

Finally, Table 8 shows that there is a statistically significant difference between teachers' participation in seminars on the inclusion of pupils with special educational needs and/or disabilities and perceptions of teachers' professional roles and functions ($t278 = -2.891$, $p < 5\%$), where teachers who had participated in seminars on the integration of pupils with special educational needs and/or disabilities have a greater perception of professional roles and functions ($M = 8.3$, S.D. = 4.05) compared to teachers who had not participated in seminars on the integration of students with special educational needs and/or disabilities ($M = 9.7$, S.D. = 3.96).

Table 9 shows the ANOVA test between their knowledge of legislation and policies related to people with special educational needs and/or disabilities and teachers' attitudes towards the inclusion of students with autism. It shows that there is a statistically significant difference between their knowledge of legislation and policies related to people with special educational needs and/or disabilities and perceptions of teachers for students with mild to moderate disabilities (F4, 279 = 7.831, $p < 5\%$), where teachers who have little knowledge of legislation and policies related to people with special educational needs and/or disabilities have more positive attitudes towards inclusion of students with autism than others.

Table 9 also shows that there is a statistically significant difference between their knowledge of legislation and policies related to people with special educational needs and/or disabilities and their beliefs about the effectiveness of inclusion of students with autism (F4, 279 = 9.415, $p < 5\%$), where teachers have little knowledge about legislation and policies related to people with special educational needs and/or disabilities and disabilities have a greater degree of positive beliefs about the effectiveness of integrating students with autism.

Finally, Table 9 shows that there is a statistically significant difference between their knowledge of legislation and policies related to people with special educational needs and/or disabilities and their perceptions of teachers' professional roles and functions (F4, 279 = 14.318, $p < 5\%$), teachers who have little knowledge of

Table 9 ANOVA check between their knowledge of legislation and policies related to people with special educational needs and/or disabilities and teachers' attitudes towards inclusion of students with autism

		Sum of squares	df	Mean square	*F*	Sig.
Teacher perceptions of students with mild to moderate disabilities	Between groups	954.867	4	238.717	7.831	.000
	Within groups	8382.505	275	30.482		
	Total	9337.371	279			
Beliefs about the efficacy of inclusion	Between groups	737.465	4	184.366	9.415	.000
	Within groups	5384.878	275	19.581		
	Total	6122.343	279			
Perceptions of professional roles and functions	Between groups	794.464	4	198.616	14.318	.000
	Within groups	3814.736	275	13.872		
	Total	4609.200	279			

legislation and policies related to people with special educational needs and/or disabilities have a greater degree of positive perceptions of teachers' professional roles and functions than others.

5 Discussion

Results from this study are discussed in an enlightening contrast with the existing literature on the attitudes of teachers towards the inclusion of students with autism in mainstream education. Significantly, the dominance of women educators in this study (87.1%) tallies with findings found in Cook, Cameron, and Tankersley [5] which reported a majority of females educating within the explained scope of inclusive education. This gender distribution could impact the overall attitudes towards the inclusive practices as some of the literature presents how often female teachers present with more favorable attitudes towards inclusion.

Significantly, the age and experience of teachers occurred factors in which 38 participants were the age group of 51–60 years and more than 20 years' experience. This to a larger extent agrees with that reported by Avramidis and Norwich [4] who said that the more experienced teachers have more favorable attitudes towards inclusion.

Location among the demographics of the teachers in the present study also posed implications for attitudes related to inclusion. This finding further supports that of Symeonidou and Phtiaka [7] who remarked that teachers in urban areas may be exposed with different student populations and this may lead them possibly into having a more positive attitude towards inclusive education. However, it contrasts with Saiti [12] studies where there were no big differences in attitudes regarding the geographical location.

This finding reflected the importance of professional development as a critical influencer in teachers' attitudes, which was found to be conforming with Florian and Black–Hawkins [6], Elsabbagh et al. [22] all other above works that stressed upon the importance of ongoing trainings and support to the teachers in inclusive settings. This emphasizes professional development, related to the broader literature that suggests these better-trained teachers would generally hold positive attitudes and become successful in inclusive classrooms.

On this view, the general educators had better perceptions of students with ASD than is the case for the special educators possess according to this study, and this is somewhat curious given that some literature such as Woolfolk [23] typically reports the special educators as having the more favorable attitudes due to their specialized training. In this study, an interesting result emerged as to the preference of inclusion among teachers who are inadequate in knowledge of legislation pertaining to special needs. This is opposed to the idea by Mackey and Gass [15] and Dörnyei [17] who supposed that teachers with more knowledge in this area are likely to express favor towards inclusive practices. By all accounts, this can be seen as an indication of the requirement for more nuanced or practical professional development which surpasses theoretical appreciation of policies.

Additionally, this research paper's findings, specifically those that mention teacher's perceptions and things in relation to an inclusive classroom when practices are

similar towards a special setting are similar towards Almalky and Alwahbi [24]. Their study presents a similar pattern, where teachers' perception forms a critical factor in implementing and succeeding in those strategies pertaining to inclusive education. This similarity gives evidence of more general consensus within this field on attitudes and mindsets among educators being key to differential educational experiences for children with ASD.

However, while congruence with the findings of Almalky and Alwahbi [24] holds some of our observations, it is also critical to note where our results represent divergencies from or expansions to existing literature. Our study highlights how demographic factors like age and years of experience just might modulate these perceptions, and not one so extensively done in the referenced study as well. Such inconsistencies are not just contradictions but possibilities for a better comprehension of the complex dynamics in inclusive education.

In conclusion, this study is congruent with some of the findings from the existing research while offering new insights and illustrating areas for further research. It is such a comparative analysis that situates the research not only within the existent academic discourse but also emphasizes the importance of further, diverse investigations in the multifarious nature of inclusive education.

6 Conclusion

The goal of the above research was to study teacher's feelings on the inclusion of autistic students. For this purpose, the survey was conducted with 280 teachers who were mostly women, aged between 51 and 60 years and had a 20-years experience. Moreover, most educators taught in large urban areas (cities of Athens and Thessaloniki) were general education teachers and held a Master's degree. Additionally, more special school teachers worked in other schools than that, where there are more than ten students with special needs or disabilities, attending, and having attended workshops on helping students with ASD-HFA. Furthermore, most teachers reported that since they are mainstream schoolteachers, they have had some specific experience in working or training children suffering from ASD-HFA, participated in seminars regarding the integration of students with disabilities and/or special educational needs, and have average knowledge about legislation and policies concerning persons with disabilities.

As regards mild to moderate disabilities, participants neither agreed nor disagreed that all separate classrooms that only serve autistic students should be eliminated or very rarely students with autism should be removed from regular classes so as to meet their educational needs. Participants also concur strongly on the need for educating all students with ASD-HFA (autism spectrum disorders–high functioning autism) within regular classes whenever possible. Moreover, teachers agree that regular classrooms provide better opportunities for training children diagnosed with ASD-HFA (autism spectrum disorders–high functioning autism). In addition to this, teachers agree that inclusive education is a better model for teaching these pupils because it reduces transition time between different settings. Finally, educators say yes for

inclusion as the best model for educating learners having autism spectrum disorders and high functioning autism since it reduces transition time.

On concerns about the effectiveness of inclusion among teachers' beliefs groups disagree over whether students suffering from HFA should not be educated in regular classrooms with students without disabilities because this takes much time away from the teacher. Teachers also disagree that teachers often question the effectiveness of educating children with high-functioning autism in a regular classroom since they are not as academically successful as they should be. In addition, teachers disagree that teachers often question the effectiveness of educating children with high-functioning autism in a regular classroom since they are not socially well-adapted. Lastly, participants neither agree nor disagree general education teachers frequently do not succeed with learners having autism ASD-HFA even though they try hard.

According to the findings of this study, teachers aged between 31 and 40 show a higher perception of professional roles and functions compared to those aged 21–30. Also, respondents who have their years of service between 11 and 15 have positive opinions on inclusion in comparison with those whose years of service range from 0 to 5, from 16 to 20, and over 20 years. Furthermore, people having worked for more than 20 years agreed much more that students suffering from autism are better integrated than individuals who have been employed for 6 to 10 years, 11 to 15 years, and 16 to 20 years. Finally, other teachers who have less than 5 years' experience had lower perceptions about professional roles and functions than any others.

Teachers who teach in rural areas are not able to perceive students with mild/moderate disabilities as good as those teaching in big cities (Athens–Thessaloniki). Furthermore, however, those teaching in large urban areas (Athens–Thessaloniki) justified better perceptions regarding both professional roles and functions by mainstream/regular classes' instructors comparing to both urban areas' tutors or rural areas' mentors.

Also, special education teachers were found to have worse perceptions about students with mild/moderate disabilities than general education ones. General educators do seem to know their roles better within schools unlike special educators do. Then again, Bachelor's holders tend to favor better integration of autistic students than Masters' holders do. Furthermore, teachers holding a PhD have deeper knowledge about professional roles and functions, unlike their colleagues with a Master's degree.

Similarly, general educators working in special schools had more positive opinions about students with mild/moderate disabilities than teachers engaged in general education schools do. It was also discovered that if the school has over 10 students diagnosed with autism, then there is a lower likelihood that those students will be better integrated into regular classrooms, compared to those of 4–5 students diagnosed with autism and 6–10 students diagnosed with autism). Also, if a teacher has not attended any workshop or seminar on the integration of pupils with exceptional educational needs or learning disabilities into the mainstream education system, then his or her opinions regarding these children's inclusion are less positive in comparison to those who attended such seminars or workshops. However, teachers who took part in seminars on the inclusion of children with exceptional educational needs and/or learning disabilities into regular schools were less inclined to think that

autistic persons get integrated better (more effectively) rather than those who did not attend such workshops. Finally, teachers who attended seminars on the integration of children suffering from exceptional educational needs and/or learning disabilities into inclusive schools possessed a better understanding of their professional roles while the other group did not.

On the other hand, respondents who were least familiar with regulations concerning people having special educational problems and/or disabilities had a stronger preference for assimilating students suffering from autism as compared to others. Similarly, those who showed little knowledge of legislation relating to special needs/disabilities expressed positive attitudes towards integrating learners diagnosed with autism into regular classes. In contrast, respondents were very much aware of their professional roles and responsibilities as teachers when they knew little about legislation related to pupils having special learning difficulties.

Also, as this relationship increases so do their beliefs about the effectiveness of inclusion among teachers' perceptions about mild/moderate student learning troubles. Additionally, also the same trend is there between teachers' perceptions of students with mild/moderate disabilities and their perception of professional roles and functions. Lastly, as teachers' opinions about students with mild to moderate disabilities increase, so do their views on the matter.

Author Contribution V.D. wrote the main text of the manuscript; C.S.R. and B.E.S.R. reviewed the manuscript.

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Code Availability Not applicable.

Declarations

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