

What Do You Know About ADHD? A Comparison between Mainstream and Special Education Teachers

Eden Sigal
Nufar Sukenik
Bar Ilan University

Abstract: This study investigates the knowledge and attitudes toward Attention-deficit/hyperactivity disorder (ADHD) among a large cohort of mainstream and special education in-service teachers in Israel. Given the pivotal role of teachers in identifying and managing ADHD symptoms within the classroom, it is crucial to ensure they possess adequate knowledge and positive attitudes toward the disorder. Previous studies have indicated a gap in knowledge and attitudes between mainstream and special education teachers, often influenced by factors such as teacher training, personal experience, and demographic characteristics. This study addresses these gaps by utilizing the well-validated ASKAT questionnaire to provide a comprehensive assessment of teachers' knowledge and attitudes toward ADHD. A total of 538 teachers participated, including 288 mainstream and 250 special education teachers. Results indicated that special education teachers demonstrated higher levels of knowledge and more positive attitudes toward ADHD compared to their mainstream counterparts. A significant positive correlation was found between knowledge and attitudes among mainstream teachers, but not among special education teachers. Additionally, demographic factors such as gender, age, and current teaching experience with ADHD students were significant predictors of teachers' knowledge and attitudes. The findings highlight the need for targeted professional development programs to enhance ADHD-related knowledge and attitudes, particularly for mainstream teachers. By identifying specific areas where mainstream teachers may lack knowledge or hold less positive attitudes, this research can inform the design of effective interventions. Ultimately, this study underscores the importance of ongoing teacher training to foster more inclusive and supportive educational environments for students with ADHD.

Keywords: ADHD, attitudes, knowledge, mainstream teachers, special education teachers

Introduction

Attention-deficit/hyperactivity disorder (ADHD) is one of the most prevalent neurodevelopmental disorders, with an estimated 5-10% of school-aged children being diagnosed. It affects both boys and girls, however during childhood boys are twice as likely to be diagnosed with ADHD than girls (13% vs 6%, respectively) (Arullapan et al., 2019 Center for Disease Control and Prevention, 2024). The implementation of inclusion policies

across numerous countries has led to a notable rise in the presence of students with ADHD in mainstream classes (Masse et al., 2022). ADHD is characterized by symptoms of inattention (difficulty concentrating and focusing), hyperactivity and impulsivity (e.g. unable to sit still, excessive talking, acting without thinking) which can significantly impact academic and social development. Many people with ADHD have problems that fall into both these categories, however this is not always the case. To receive a diagnosis of ADHD, a child's behavior needs to be developmentally inappropriate, and the symptoms must manifest before the age of 12, persist for at least 6 months, occur in two or more settings, result in significant impairments in various domains (e.g., home, school, occupational, or peer settings), and not be secondary to another disorder (American Psychiatric Association, 2022).

Children with ADHD often become noticeable for their difficulties when they start school, particularly as the academic and social demands increase (Holland & Sayal, 2019; Wolraich et al., 2019). Wolraich et al., (2019) claim that according to the American Academy of Pediatrics, the average age of ADHD diagnosis is seven years old which aligns with the typical age of school entry at six years. However, it is important to acknowledge that many children with ADHD may have been receiving services and participating in early intervention programs before school entry. These early interventions typically address developmental concerns and provide support to families (Risley et al., 2020).

Given this context, teachers play a pivotal role in identifying and managing ADHD symptoms within the classroom. Research indicates that teachers' knowledge about ADHD influences their attitudes (Cueli et al., 2022; Lasisi et al., 2017; Sciutto et al., 2016) and behaviors (Sherman et al., 2008) towards affected students. However, it remains unclear whether current educational initiatives have effectively reduced the knowledge and attitudes gap between special education and mainstream teachers. This study aims to address this gap by investigating the knowledge and attitudes towards ADHD among a large cohort of mainstream and special education teachers in Israel.

Considering the crucial role teachers play in both assessment and intervention stages, it is necessary to ensure that teachers possess positive knowledge and attitudes. This may enable them to effectively manage children with ADHD in their classrooms and implement appropriate intervention strategies. Despite the increasing awareness and prevalence of children with ADHD in mainstream classrooms in recent years, and the fact that teachers often obtain knowledge about ADHD through personal experience in their classrooms, it remains unclear whether these educational changes have effectively reduced the knowledge and attitudes gap toward ADHD between special education and mainstream teachers. Furthermore, limited research has been conducted on the demographic factors that may influence these variables. Therefore, it is important to look more deeply into teachers' knowledge about ADHD and their attitudes toward it. This study seeks to address the gap in the literature, and specifically explore the Israeli context, whereas scarce information exists regarding these issues.

Literature Review

ADHD and Teacher Training

Children with ADHD commonly exhibit academic under-achievement, and encounter various learning difficulties (Arnold et al., 2020; Morsink et al., 2021), which often leads to heightened rates of expulsions and increased dropout rate (Lawrence et al., 2019; May et al., 2021). Notably, research has revealed robust associations between probable ADHD and school-related difficulties among children aged 4-9 years (May et al., 2021). Dalsgaard et al., (2020) examined over 600,000 children, finding that those diagnosed with ADHD were more

likely to miss final school examinations. Furthermore, among children with ADHD who did take these exams, their grades were significantly lower compared to their peers. Consequently, children with ADHD often require additional academic support, such as tutoring, pull-out classes, after-school programs, and special accommodations within the classroom (DuPaul et al., 2019). Moreover, social challenges are prevalent among children with ADHD, which can impact various aspects of their lives, hindering their ability to foster positive relationships with family, friends, peers, and romantic partners (Tamm et al., 2021; McKay et al., 2022).

Teachers assume a central role in identifying children who may be at risk of ADHD diagnosis, while also providing essential educational, behavioral, and emotional support within their classrooms (Flanigan & Climie, 2018). Research indicates that teachers' classroom behavior, including their level of supportiveness and the positivity of their reactions, is closely associated with their knowledge (Blotnicky-Gallant et al., 2015) and attitudes (Kos et al., 2006) towards ADHD.

Teacher training plays a crucial part in shaping educators' beliefs, attitudes, and instructional practices, thereby influencing the quality of education and student learning experiences. In the context of Israel, where this study is situated, disparities exist in the curriculum of teacher training programs between special education and mainstream educators. Special education programs typically incorporate introductory courses covering various developmental disabilities, including ADHD, along with extensive practicum courses focusing on specialized pedagogical methods. Conversely, mainstream education programs prioritize discipline-specific coursework alongside broader studies in child development. Gilor and Katz (2017) conducted interviews with preservice teachers to explore their perceptions of the teacher training programs in which they were enrolled. The study involved 18 preservice Israeli teachers in their first and third years across various teacher-training programs (early childhood, primary school, and high school education). Qualitative analysis revealed discrepancies among the programs regarding the extent of inclusion training and approaches to fostering inclusive teaching. Results indicated that preservice teachers, particularly those preparing for mainstream schools, expected more comprehensive training in inclusive teaching than what was currently offered in their programs.

Recent reforms in teacher education in Israel have aimed to enhance the preparation of pre-teachers addressing ADHD and other special needs. According to the Israeli Ministry of Education (2018), current teacher training programs include more comprehensive coursework on special education and ADHD compared to a decade ago. This enhancement in teacher training is intended to better equip teachers with the knowledge and skills necessary to support students with ADHD (Malki & Einat, 2017). However, there remains a disparity between the number of courses regarding children with different developmental disabilities that preservice teachers specializing in special education undergo compared to their counterparts majoring in mainstream education (Spear et al., 2018). Furthermore, several studies have highlighted the impact of teaching experience and close interaction with children with ADHD on teachers' knowledge of the disorder (Al-Moghamssi & Aljohani, 2018; Mulholland et al., 2015).

Teacher's Knowledge about ADHD

Exploring teachers' knowledge of ADHD is essential for their functioning in the classroom, as there is complex relationship between knowledge, attitudes and behavior (Adamis et al., 2024). Teachers' understanding of ADHD can shape how they manage

classroom dynamics, implement interventions, and support students' academic and social development.

Teachers often rely on studies and medical reports that portray students with ADHD negatively, emphasizing their challenges (Freedman, 2016). Alshehri et al. (2020) conducted a study assessing school teachers' knowledge about ADHD in Saudi Arabia, revealing that teachers had insufficient knowledge, particularly regarding its causes and aggravating factors. Similarly, Soroa et al. (2016) found that Spanish teachers' knowledge about ADHD ranged from low to moderate, and Adamis et al. (2024) reported low levels of ADHD knowledge among teachers. In a more in-depth study, Amiri et al. (2017) examined Iranian preschool teachers' knowledge about ADHD and found that while teachers were more knowledgeable about symptoms and treatment, their understanding of the etiology and consequences was relatively poor.

Most previous studies primarily focused on examining teachers' knowledge of ADHD etiology, prevalence rates, and hallmark characteristics among both pre-service and in-service teachers (Mulholland, 2016). Findings generally suggest that in-service teachers possess greater knowledge and understanding of ADHD than their pre-service counterparts, likely due to their daily exposure to children with ADHD in their classrooms (Al-Moghamhsi & Aljohani, 2018; Anderson et al., 2017). This increased exposure appears to enhance teachers' practical understanding and efficacy in managing ADHD-related challenges.

The effectiveness of teacher training programs remains a topic of debate. Recent studies, such as those by Ward et al. (2022), indicate significant improvements in teachers' ADHD knowledge and behaviors following training programs. Similarly, a study by Alsheri et al. (2020) found that school-based ADHD knowledge improvement programs had lasting positive effects on teachers' knowledge. Additionally, a systematic review by Ward et al. (2020) confirmed the effectiveness of these programs in enhancing educators' knowledge and attitudes towards ADHD. Latouche and Gascoigne (2019) further support these findings, demonstrating that in-service training programs significantly improve teachers' ADHD knowledge and self-efficacy. These findings contrast earlier studies, such as Jerome et al. (1994), which found no significant differences in ADHD knowledge between pre-service and in-service teachers. Conversely, research by Jarque and Tarraga (2009) in Spain highlighted that teacher-training programs can be effective, as third-year pre-service teachers exhibited similar knowledge levels to active teachers, contrasting with the lower knowledge levels of first-year pre-service teachers.

In the context of special education, it is generally expected that teachers who undergo specialized training and work with higher percentages of children with ADHD would possess greater knowledge levels than mainstream education teachers. This expectation is supported by studies conducted in Hong Kong and Greece (Lee et al., 2015; Stampoltzis & Antonopoulou, 2013). However, several studies in the United States and Spain have found no significant differences in knowledge levels between special education and mainstream teachers, potentially due to the widespread presence of ADHD in mainstream classrooms and variations in teacher training curricula (Ballantine, 2015; Soriano-Ferrer & Echeagaray-Bengoia, 2019).

In Israel, as far as we know only two studies have examined teachers' ADHD knowledge (Brook et al., 2000; Liviatan, 2015). Brook et al. (2000) examined high-school teachers' knowledge of ADHD and learning disabilities, finding no significant differences between mainstream and special education teachers, with both groups demonstrating generally high knowledge levels. It should be noted that the sample size was small (n=46), warranting cautious interpretation of the results. The second study in Israel by Liviatan (2015) examined knowledge levels among teachers in state schools compared to those in the religious sector, with both groups exhibiting good ADHD knowledge levels, slightly higher

among teachers from state schools. This study also found a positive correlation between years of work experience and knowledge levels, similar to finding in Spain by Soriana-Ferrer and Echegaray-Bengoia, (2019). Additionally, Amado Luz et al. (2021) and Soroa et al. (2016) found that teachers' knowledge correlated with the number of children with ADHD in their classrooms and their perceived self-efficacy. Amado Luz et al. (2021) conducted a study analyzing the effectiveness of a long-term training program on ADHD, which revealed that teachers who participated in the program showed significant improvements in both ADHD knowledge and perceived self-efficacy. Similarly, Soroa et al. (2016) examined the relationship between teachers' training and their knowledge of ADHD, finding that formal, non-formal, and informal training significantly enhanced teachers' self-perceived knowledge and their ability to manage students with ADHD.

In conclusion, research on knowledge about ADHD has yielded varied results, with some studies reporting low levels of teacher knowledge and others indicating moderate or high levels. Also, while studies have explored teachers' understanding of ADHD symptoms and prevalence, findings vary across teacher demographics and contexts. In-service teachers typically exhibit higher understanding due to classroom exposure. However, the effectiveness of teacher training programs remains unclear. Discrepancies also exist between special education and mainstream teachers' knowledge levels. In Israel, both groups generally demonstrate high understanding, with experience correlating positively with knowledge. These findings emphasize the importance of ongoing professional development to ensure optimal support for students with ADHD.

Teachers' Attitudes towards ADHD

According to Maio et al., (2018), attitudes encompass an overall assessment of an object, shaped by cognitive, affective and behavioral information. In the context of teachers, attitudes refer to their feelings, opinions, and associated behavior regarding children with ADHD and ADHD in general.

When considering teachers' interactions with students with ADHD in mainstream settings, it is important to recognize that their attitudes are often influenced by lifelong experiences and teaching encounters (Masse et al., 2022). Additionally, positive attitudes foster constructive relationships between teachers and students, promoting cooperation and enhancing academic motivation (Flavian, 2022).

Teachers' attitudes towards ADHD are influenced by a myriad of factors, including their knowledge of ADHD, personal experiences with the disorder, and demographic characteristics, as highlighted by Kos et al. (2006). The interaction between these factors and classroom behavior remains under-researched, underscoring the need for comprehensive studies that explore these multifaceted relationships. Previous studies have shown that teachers with greater knowledge about ADHD tend to have more positive attitudes (Cueli et al., 2022; Lasisi et al., 2017; Scitutto et al., 2016) and that teachers' attitudes towards children with ADHD may affect their classroom behavior (Sherman et al., 2008). Moreover, teachers with greater knowledge of ADHD behave more favorably towards affected children (Toye et al., 2019). Hosseinnia et al. (2020) indicated a correlation between behavior, knowledge, and attitude, whereas teachers' behavior is influenced more by their attitude rather than knowledge.

Direct comparisons between special education and mainstream education teachers in previous studies are scarce. Therefore, we incorporate studies examining teacher attitudes towards ADHD, even if the samples differ, to gain insights into teacher attitudes and leverage existing knowledge on the subject. Positive teacher attitudes towards children with ADHD have been linked to better ADHD knowledge (e.g. Anderson et al., 2017 – Australia; Lasisi et

al., 2017 – Nigeria), and increased teaching experience (Mulholand et al., 2015- Australia; Youssef et al., 2015 - Trinidad and Tobago). Kos et al. (2006) in a literature review found generally positive attitudes toward ADHD among teachers, as did Cueli (2022). However, Kos et al. also noted the lack of relevant research linking classroom behavior to various factors, such as teacher training, personal experience with ADHD, and demographic characteristics. This highlights the need for further investigation into how these factors collectively influence classroom behavior and attitudes towards ADHD.

Alkahtani (2013), testing teachers from Saudi Arabia, found that attitudes towards teaching children with ADHD were related to their perceived competency, which, in turn, correlated with ADHD knowledge. Khademi et al. (2016) examined teachers in Iran, revealing that most had average knowledge scores and held neutral attitudes towards ADHD. Similarly, Frigerio et al. (2014) in Italy and Anderson et al. (2017) in Australia identified ambivalent attitudes towards ADHD among primary school teachers. In contrast, Al-Omari et al. (2015) found that primary school teachers in Jordan exhibited low ADHD knowledge scores and generally held negative perceptions towards ADHD. They found no relationship between teachers' knowledge and attitudes and no differences across demographic groups. Yarde-Leavett (2018) found similar negative attitudes among primary school teachers in South Africa towards ADHD-type behaviors. Finally, Adamis et al. (2024) reported that teachers in Ireland had more negative attitudes towards ADHD than positive ones. Akram et al. (2009) reported negative attitudes and misperceptions regarding ADHD among Scottish teachers, attributed to low levels of ADHD knowledge.

In summary, teachers' knowledge of ADHD is lacking and based on misinformation, contributing to negative attitudes towards affected children (Dort et al., 2020; Soroa et al., 2016). Therefore, evaluating teachers' knowledge and attitudes is crucial to implementing intervention strategies as aimed at enhancing their knowledge where necessary.

Teachers' Knowledge Compared to Attitudes towards ADHD

Previous studies on teachers' attitudes towards ADHD often focused on specific aspect, such as medical treatment or social stigmas, making it challenging to compare findings across studies (Mulholland, 2016). Therefore, there is a need for studies that comprehensively examine both knowledge and attitudes, as demonstrated by various studies (Greenway & Rees, 2020; McHargue, 2019; Maema, 2021; Yarde-Leavett, 2018). For instance, Yarde-Leavett (2018) examined elementary school teachers in South Africa, revealing good knowledge levels but negative attitudes towards ADHD. In contrast, McHargue (2019) found no significant correlations between years of teaching experience and either knowledge or attitudes among elementary school teachers in the United States. Similarly, Maema (2021) observed that many mainstream 3rd grade teachers in South Africa had low ADHD knowledge levels and felt overwhelmed and under skilled when dealing with ADHD in their classroom. Additionally, Greenway and Rees (2020) investigated teachers from middle and elementary schools, along with two groups of in-training teachers in the UK. They all demonstrated good knowledge about ADHD, but in-training teachers exhibited more positive attitudes compared to experienced teachers.

Previous studies examining the relationship between knowledge of and attitudes toward ADHD have reported diverse findings (Greenway & Edwards, 2020). For instance, Greenway and Edwards (2020) found a significant association between knowledge about ADHD and attitudes toward it among teachers in the United Kingdom, but not among teaching assistants. Similarly, Amiri et al. (2017) found that overall knowledge, particularly

regarding the etiology of ADHD, was correlated with more positive attitudes toward the disorder.

Moreover, as was mentioned before, researchers have highlighted the correlation between teachers' knowledge of ADHD and their possible behavior (Toye et al., 2019), and between behavior, knowledge, and attitude (Hosseinnia et al., 2020).

In summary, these studies focused on exploring the knowledge and attitudes of elementary and middle school teachers towards ADHD, employing the same questionnaire, the ADHD Specific Knowledge and Attitude of Teachers (ASKAT). Despite similarities, differences existed in geographical location and sample size. While Yarde-Leavett (2018) revealed good knowledge but negative attitudes, McHargue (2019) found no significant correlations, and Maema (2021) reported low knowledge levels and feelings of inadequacy.

The Current Study

In recent years, the increasing awareness and prevalence of children with ADHD in mainstream classrooms has prompted many teacher education programs to expand their curricula to include more courses addressing the needs of students with special needs. Additionally, teachers often acquire knowledge about ADHD through firsthand experience with these students in their classrooms over time. However, it remains unclear whether these educational initiatives have effectively narrowed the knowledge gap between special education and mainstream teachers.

The primary aim of this study is to address this gap in the literature and contribute by investigating the knowledge and attitudes toward ADHD of a large cohort of in-service teachers, distinguishing between mainstream and special education teachers. Previous studies have indicated that special education teachers typically possess more knowledge and hold more positive attitudes towards ADHD than mainstream teachers. However, the use of different research tools has made it difficult to compare findings across studies. Additionally, there has been limited research specifically quantifying these differences within the context of the Israeli educational system. This study addresses these gaps by utilizing the well-validated ASKAT questionnaire to provide a comprehensive examination of teachers' knowledge and attitudes towards ADHD.

While it may be expected that special education teachers possess more knowledge and positive attitudes towards ADHD due to their specialized training, quantifying this difference and exploring its implications is crucial. Identifying specific areas where mainstream teachers may lack knowledge or hold less positive attitudes allows for the design of targeted professional development to improve support for students with ADHD. This research has the potential to influence educational policies and teacher training programs, ultimately benefiting children with ADHD by ensuring they receive more informed and empathetic support in both mainstream and special education settings.

Furthermore, this study provides valuable insights into the impact of teacher knowledge and attitudes on the academic and social development of students with ADHD, thereby promoting more inclusive and effective educational practices. Few studies have examined the demographic factors that may shape teachers' perceptions and understanding of ADHD, which can inform professional development programs. Therefore, this study also aims to examine whether specific demographic factors influence these variables.

Our first research question focuses on whether special education teachers exhibit higher levels of knowledge and more positive attitudes toward ADHD than mainstream counterparts. We hypothesize that special education teachers will demonstrate higher

knowledge and attitudes levels, given their specialized training and regular interactions with students with ADHD in their classrooms.

The second research question examines whether a relationship exists between teachers' knowledge and attitudes within each group. We hypothesize that both special education and mainstream teachers will show positive correlation between their knowledge and attitudes towards ADHD.

Finally, our third research question investigates whether demographic measures, such as teaching experience and age, contribute to knowledge levels and attitudes within these groups. We hypothesize that these demographic factors, particularly teaching experience and age, may play a significant role in shaping teachers' knowledge and attitudes towards ADHD.

Method

Procedure

Following the attainment of ethical approval number 95 from the Internal Review Board of the Bar Ilan university, the questionnaire underwent translation and adaptation to Hebrew. A pilot study involving 10 teachers ensured the questionnaire's clarity, revealing no instances of floor or ceiling effects. Subsequently, a research invitation containing a link to the online questionnaire was disseminated via various social media platforms such as Facebook, WhatsApp, etc. to a randomized selection of teachers from diverse schools across Israel. The teachers were asked to distribute that link to their professional colleagues by emails or instant messaging system following the snowball sampling method. Teachers were categorized as either mainstream or special education teachers based on their current workplace alignment with their qualifications. Before completing the questionnaires, participants read the information about the study and gave their consent to participate in the study. Also, they were informed of the voluntary nature of their participation and the assurance of anonymity regarding their responses. Only fully completed questionnaires were included in the analysis, yielding a notably high response rate of 80%.

Participants

Our sample comprised 538 teachers (150 males and 388 females). The ages of the teachers ranged between 21-69 years old ($M = 37.33$, $SD = 9.74$). The teachers were sampled from two distinct groups: 288 mainstream education teachers (teaching in a mainstream setting with no special education qualifications), and 250 special education teachers (teaching in a special education setting with special education qualifications).

Research Tools

ADHD-Specific Knowledge and Attitudes of Teachers (ASKAT, Mulholland, 2016)- The self-reported ASKAT questionnaire consists of four sections, including two subscales: the scale for ADHD-specific knowledge (SASK) and the scale for ADHD-specific attitudes (SASA).

1. *Demographic data*- 11 questions (e.g. gender, age, teaching experience) adapted for an Israeli sample.
2. *SASK*- The 20 items assess teachers' knowledge regarding the characteristics, etiology, and management of ADHD. Each item presents a statement, such as, "Children with ADHD tend to have poor concentration", which respondents examine

as correct or incorrect based on established facts. For this study, “I don’t know” responses were scored as incorrect. Higher scores indicating greater ADHD-specific knowledge. Internal consistency was high using split half method was .65, and McDonald’s ω internal consistency was .75.

3. *SASA*- Consists of 30 items designed to measure teachers’ ADHD-specific attitudes across three components: cognitive beliefs- teachers’ evaluative thoughts and beliefs towards the condition and learners affected by it; affective states- the moods and feelings of teachers when teaching ADHD-affected learners; perceived control- the control teachers believe they have over-performing behaviors associated with the management of ADHD. Items are rated on a 6-point Likert scale ranging from 1 (“strongly disagree”) to 6 (“strongly agree”). Cronbach’s alpha values for each factor ranged between .77-.89, indicating good internal consistency. This study is the first to use this tool in Israel, and therefore was translated into Hebrew and back-translated into English to ensure validity. The internal consistency of Cronbach’s alpha was $\alpha=.75$. An exploratory factor analysis was conducted to investigate the underlying dimensions of teachers’ ADHD-related attitudes measured by the items, and to create composite scores for further analysis. A varimax, orthogonal rotation was performed to increase the interpretability of the factors. Together, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, $KMO = .807$, and the Bartlett’s test of sphericity, $\chi^2(435, N=538) = 4291.51, p < .000$, indicated that factor analysis was an appropriate analysis method for the dataset. An initial analysis identified 8 factors with eigenvalues greater than Kaiser’s criterion of 1. Collectively, these factors accounted for 57.72% of the total variance of the dataset which exceeded the 60% threshold for a satisfactory factor solution suggested by Hair et al., (2010). Four items (2 from factor 7, and 2 items from factor 8) with communality values below .30 were removed as these items contributed minimally to the common variance. The six factors remained were identified by this analysis largely reflect the four factors identified by Mulholland et al. (2015). Items with loadings greater than .40 were regarded as definitional to the factor. The six extracted factors were: (1) Negative consequences of ADHD-type behaviors (e.g., “I found students who display ADHD-type behaviours cause me to experience stress”), (2) Positive consequences of ADHD-type behaviors (e.g., “I find it challenging to teach students who exhibit behaviours associated with ADHD”), (3) Desire for professional learning (e.g., “I would like to have more information about classroom interventions to assist me with educating students who display ADHD-type behaviours”), (4) Feeling of knowledgeability (e.g., “I feel I have received adequate professional development about managing ADHD-type behaviours”), (5) Negative beliefs of ADHD-type behaviors (e.g., “I believe children who exhibit ADHD type behaviours are deliberately misbehaving”), and (6) Feelings about teaching students who exhibit ADHD-type behaviors (e.g., “Students who exhibit behaviours associated with ADHD interfere with my ability to effectively teach my class”).

Data Analysis

The reported quantitative study employed various data analysis techniques to investigate the research inquiries. To compare the knowledge and attitudes subscales between the two study groups, independent samples t-tests were conducted individually for each subscale. Additionally, a MANOVA analysis was employed to assess differences between the two study groups across the six components of the attitude subscale. To explore potential relationships between knowledge and attitudes, Pearson correlation analyses were performed

on all teacher scores, as well as within each study group separately. Lastly, to ascertain whether demographic characteristics significantly contributed to the explained variance (EPV) of the questionnaire's two subscales, two separate multiple regression analyses were conducted for each subscale.

Results

Table 1 presents the demographic characteristics of the teachers who participated in the current study.

Demographics characteristics	Values	Total sample (N= 538)	Special education teachers (n = 250)	Mainstream education teachers (n = 288)	χ^2	p
Gender	Male	150 (27.9%)	70 (28.0%)	80 (27.8%)	.00	.954
	Female	388 (72.1%)	180 (72.0%)	208 (72.2%)		
Country of birth	Israel	505 (93.9%)	231 (92.4%)	274 (95.1%)	1.74	.187
	Other	33 (6.1%)	19 (7.6%)	14 (4.9%)		
Education ¹	B.A.	333 (61.9%)	151 (60.4%)	182 (63.2%)	-.60	.549
	M.A.	203 (37.7%)	99 (39.6%)	104 (36.1%)		
	Ph.D.	2 (0.4%)	0 (0.0%)	2 (0.7%)		
ADHD students in the past	No	18 (3.3%)	5 (0.9%)	13 (4.5%)	2.61	.106
	Yes	520 (96.7%)	245 (98.0%)	275 (95.5%)		
ADHD students in the present	No	50 (9.3%)	13 (5.2%)	37 (12.8%)	9.28**	.002
	Yes	488 (90.7%)	237 (94.8%)	251 (87.2%)		
School age ¹	Preschool	30 (5.6%)	11 (4.4%)	19 (6.6%)	1.67	.095
	Primary school	303 (56.3%)	156 (62.4%)	147 (51.0%)		
	High school	205 (38.1%)	83 (33.2%)	122 (42.4%)		
Class gender	All boys	144 (26.8%)	82 (32.8%)	62 (21.5%)	12.49**	.002
	All girls	53 (9.9%)	16 (6.4%)	37 (12.8%)		
	Co-educational	341 (63.4%)	152 (60.8%)	189 (65.6%)		
Teachers' age ²	M(SD)	37.33(9.74)	37.21(9.67)	37.44(11.33)	.27	.787
Number of ADHD students currently taught ²	M(SD)	6.22(7.48)	6.96(8.99)	5.58(5.80)	2.14*	.033

**p < .01 (probability value); ¹Mann-Whitney analyses were conducted – the variables are in an ordinal scale (the z values are reported); ²T-test for two independent samples were conducted – the variables are in a ratio scale.

Table 1: Participants' demographics characteristics by research group (N = 538)

As seen in Table 1, there were no significant differences between groups for most demographic characteristics, except for their current engagement with students with ADHD, students' gender, and the number of students diagnosed with ADHD currently taught by the teachers. It should be noted that in Israel, special education classes typically contain 8-9 students, whereas mainstream classes have 30-40 students. Although the statistical analysis indicates a difference of only one student, it is important to consider the relative frequency of children with ADHD in each class. In special education, approximately 75% of the students

(6 out of 8) have ADHD, whereas in mainstream education, about 12.5% of the students (5 out of 40) have ADHD.

We also examined the factor loadings for the exploratory principal factor analysis of the SASA questionnaire.

Item	1 Negative consequences of ADHD	2 Positive consequences of ADHD	3 Desire for professional learning	4 Feeling of knowledgeability	5 Negative beliefs of ADHD	6 Feelings about teaching students with ADHD	7 Positive beliefs of ADHD	8
4A	.771							
4E	.766							
1B	.710							
5B	.649							
5D	-.499							
4C		.666						
4D		.646						
5A		.594						
1G		.576						
1H		.564						
1C		.542						
3C			.868					
3B			.838					
7C			.671					
6A				.791				
7A				.687				
7B				.623				
6B				.600				
5C				.486				
2D					.766			
1E					.693			
2C					.582			
4B					.448			
1D						.613		
7D						.607		
1A						.583		
1F							.718	
2B							.579	
2A								.776
3A								.546
α	.766	.682	.769	.713	.654	.600	.247	.225
EPV	10.993	9.307	7.942	7.513	6.885	6.575	4.431	4.077

**Items can be found on the appendix of Mulholland (2016)*

Table 2: Factor loadings for exploratory principal factor analysis with Varimax rotation of the SASA (N = 538)

Special Education vs. Mainstream Education Teachers

Our first research question aimed to examine whether special education teachers exhibit greater knowledge of ADHD and more positive attitudes towards the disorder compared to mainstream teachers. Results indicated significant differences between the groups across both subscales [$t(536) = 4.63, p = .000$ for the SASK subscale and $t(536) = 6.15, p = .000$ for the SASA subscale]. Special education teachers demonstrated a higher level of knowledge about ADHD ($M = 15.38, SD = 2.44$) and displayed more positive

attitude towards ADHD ($M = 4.61, SD = 0.42$) compared to mainstream teachers ($M = 14.30, SD = 2.93$ and $M = 4.37, SD = 0.47$, respectively).

In order to examine the difference between the two study groups in the six components of the attitude subscale, we first reversed the items to ensure that higher scores on each component indicated more positive attitudes toward ADHD. Table 3 presents the mean and SD of teachers' scores on the SASA subscale.

SASA subscale	Special education teachers ($n = 250$)		Mainstream education teachers ($n = 288$)		F	p	η_p^2
	M	SD	M	SD			
	Negative consequences of ADHD	3.69	0.99	3.48			
Positive consequences of ADHD	4.75	0.63	4.56	0.74	10.02**	.002	.02
Desire for professional learning	5.29	0.72	5.15	0.82	4.51*	.034	.01
Feeling of knowledgeability	4.23	0.77	3.71	0.92	49.06***	.001	.08
Negative beliefs regarding ADHD	5.13	0.68	5.03	0.74	2.78	.096	.01
Feelings about teaching students with ADHD	4.56	1.11	4.29	1.00	8.39**	.004	.02

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3: Mean (and SD) of the teachers' scores on the SASA subscale, by study group

As Table 3 shows, a significant difference was found between the two study groups regarding the attitude subscale components, $F(6,531) = 9.97, p = .000, \eta^2 = .10$. Subsequent examination of group differences across each component marginal-significant distinctions in five out of six components [Negative consequences of ADHD: $F(1,536) = 6.20, p = .013, \eta^2 = .01$; Positive consequences of ADHD: $F(1,536) = 10.02, p = .002, \eta^2 = .02$; Desire for professional learning: $F(1,536) = 4.51, p = .034, \eta^2 = .01$; Feeling of knowledgeability: $F(1,536) = 49.06, p = .000, \eta^2 = .08$ and Feelings about teaching students with ADHD: $F(1,536) = 8.39, p = .004, \eta^2 = .02$]. Notably, mean scores across these components indicated that special education teachers exhibited more positive attitude compared to mainstream teachers. However, no significant difference was found in the component: negative beliefs regarding ADHD, $F(1,536) = 2.78, p = .096, \eta^2 = .01$. Figure 1 illustrates the mean scores and SE of the six components of the attitude subscale (SASA).

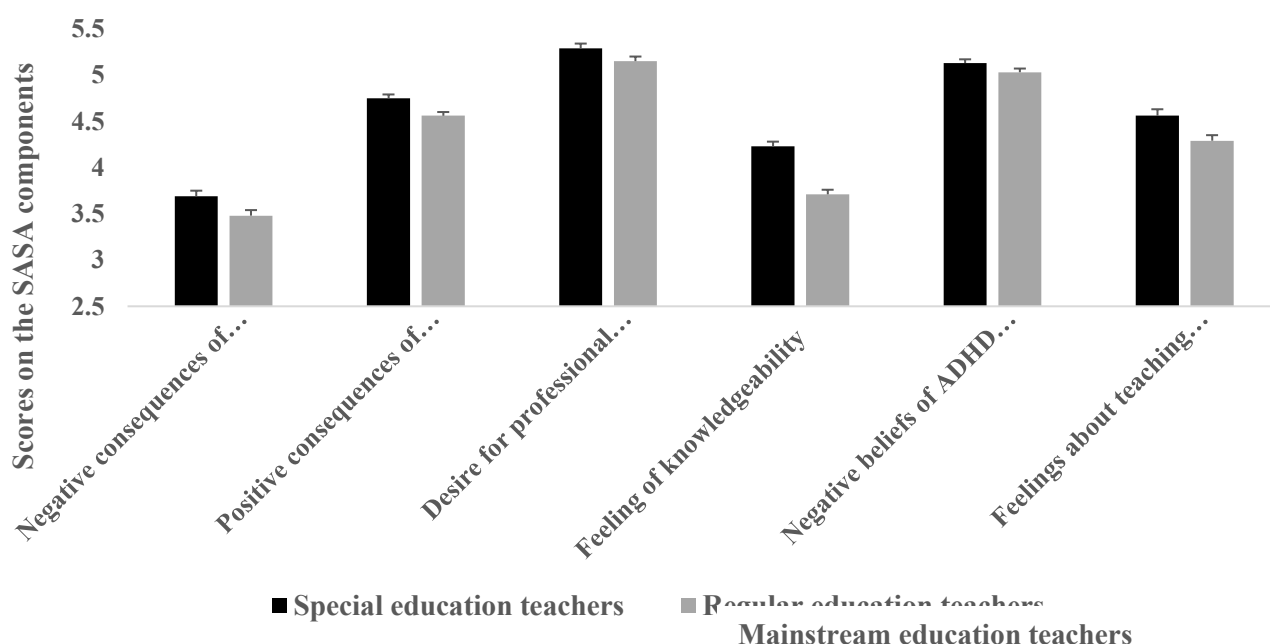


Figure 1: Mean scores (and SE) of the six components of attitudes subscale (SASA)

To conclude the results in this section, we found that special education teachers displayed a higher level of knowledge about ADHD and more positive attitude towards ADHD compared to mainstream teachers. A deeper examination of the components of the attitude subscale revealed that overall, special education teachers exhibited more positive attitude in most components compared to mainstream teachers, except in the negative beliefs regarding ADHD component.

Relations between Teachers’ Knowledge and Attitude

Our second research question aimed to ascertain whether a correlation exists between teachers’ knowledge and attitudes within each of the two groups. The mean score in the SASK subscale, assessing knowledge about ADHD, was 14.80 (SD = 2.77) out of a maximum score of 20 and the mean score in the SASA assessing attitudes towards ADHD was 4.48 (SD = 0.46) out of a maximum score of 6 for all study participants. These results suggest that teachers possess a medium-high level of knowledge about ADHD and possess generally positive attitude toward the disorder.

The correlation between knowledge and attitudes analyses were conducted between the total score of the ASKAT (comprising the entire questionnaire) and each of the six components of the attitude component - SASA. Table 4 presents the Pearson correlation coefficients between the two subscales.

SASA attitudes subscale	SASK knowledge subscale (all / special education teachers/ mainstream education teachers)
Negative consequences of ADHD	-.20*** / -.31*** / -.16**
Positive consequences of ADHD	.30*** / .26*** / .30***
Desire for professional learning	-.09* / -.28*** / .00
Feeling of knowledgeability	.21*** / .10 / .21***
Negative beliefs regarding ADHD	-.13** / -.05 / -.17**
Feelings about teaching students with ADHD	.28*** / .26*** / .27***
SASA subscale – total score	.19*** / .02 / .23***

p* < .01, *p* < .001

Table 4: Pearson correlation coefficients between the two subscales of the self-reported ASKAT

As illustrated in Table 4, a significant positive correlation was found between the two subscales assessing knowledge and attitudes among the mainstream teachers group, but not within the special education teachers group [$r(286) = .23, p = .000$ and $r(248) = .02, p = .708$, respectively]. Fisher r-to-z transformation was conducted in order to examine whether the correlation coefficient between the knowledge subscale and attitudes subscale differ significantly between the two study groups. Result indicated that the two-correlation coefficients differ significantly ($Z = 2.46, p = .014$). The positive correlation suggests that as the mainstream teachers’ knowledge about ADHD increases, their attitude toward ADHD tend to be more positive.

Regarding the correlations between the knowledge subscale and the six components of the attitudes subscale, heightened knowledge about ADHD was associated with lower scores on the components: “negative attitudes about the consequences of ADHD” and “negative beliefs regarding ADHD”, while greater knowledge about ADHD was associated with higher scores on the three components: “positive attitudes about the consequences of ADHD”, “feeling of knowledgeability” and “feelings about teaching students with ADHD”.

To conclude the main results in this section, it was found that as the mainstream teachers' knowledge about ADHD increases, their attitude toward the disorder tend to be more positive. A deeper examination of the attitude's components revealed that higher knowledge about ADHD was associated with lower negative components and higher positive components.

The Contribution of Demographics Characteristics

Our third research question was to determine whether any demographic characteristics significantly contributed to the explained variance (EPV) of the two subscales of the questionnaire. The demographic characteristics were teachers' gender, country of birth, education level, teaching ADHD students in the past, teaching ADHD students in the present, school age, class gender, teachers' age, teaching experience (years) and number of students diagnosed with ADHD taught by the teacher. These demographic characteristics were entered into the regression model in a stepwise manner. Stepwise regression analysis was utilized to incorporate only variables demonstrating a significant contribution to the EPV into the regression models. The sequence of variables insertion followed the order of their significance. Moreover, each subsequent variable entered into the regression model contributed to the EPV beyond the variable variables previously included. Only variables that contributed significantly in the next step beyond the last step were entered into the regression model. This approach aimed to mitigate the probability of multicollinearity. Table 5 presents the results of the regression analyses for the knowledge and attitudes subscales.

<i>ASKAT subscales</i>	<i>Steps</i>	<i>Demographic characteristics</i>	<i>B</i>	<i>SE.B</i>	<i>β</i>	<i>R²</i>	<i>ΔR²</i>
SASK knowledge subscale	1	Gender ¹	1.35	.26	.22	.048***	.048***
	2	Gender ¹	1.36	.25	.22		
	3	Study group ²	1.09	.23	.20	.087***	.039***
		Gender ¹	1.36	.25	.22		
		Study group ²	.98	.23	.18		
	ADHD students in the present	1.41	.39	.15	.109***	.022***	
SASA attitude subscale	1	Study group ²	.24	.04	.26	.066***	.066***
	2	Study group ²	.23	.04	.24		
	3	School age	-.15	.03	-.19	.103***	.037***
		Study group ²	.22	.04	.24		
	4	School age	-.16	.03	-.20		
		Teachers' age	-.01	.00	-.10	.114***	.011*
		Study group ²	.23	.04	.24		
		School age	-.15	.03	-.18		
	Teachers' age	-.01	.00	-.10			
	Gender ¹	.09	.04	.09	.122***	.008*	

p* < .05, **p* < .001; ¹Gender (0 = Male, 1 = Female); ²Study group (0 = mainstream education teachers, 1 = Special education teachers)

Table 5: Regression analyses for the subscales

As Table 5 shows, teachers' demographic characteristics contributed 10.9% and 12.2% to the EPV of the knowledge and attitudes subscales, respectively. The teachers' gender and their grouping variable contributed to the EPV of both subscales. Positive β coefficients indicated that female teachers and those in special education tended to have higher scores on the knowledge and attitudes subscales.

Concerning the knowledge subscale, a significant contribution was also found for the demographic variable “ADHD students in the present”. The positive β coefficient indicates that teachers currently teaching ADHD students tend to attain higher scores on the knowledge subscale. Conversely, concerning the attitudes subscale, significant contributions were found for the demographic variables “school age” and “teachers’ age”. Negative β coefficients imply that as the age of both the students in the school and the teachers decreases, scores on the attitude’s subscale increase.

To conclude the main results regarding the teacher’s demographic characteristics, it was found that female teachers and special education teachers tended to have higher knowledge and attitudes toward ADHD. Also, teachers currently teaching ADHD students have higher knowledge. Moreover, as the students’ and the teachers’ age decreases, the teachers’ attitudes increase.

Summarizing the overall results, it appears that overall teachers in Israel possess medium to high levels of knowledge regarding ADHD. Comparative analysis between groups found that special education teachers exhibit greater knowledge about ADHD and possess more positive attitudes than mainstream teachers. However, among mainstream teachers, a positive correlation was found between knowledge about ADHD and more positive attitudes, a correlation that was not found among special education teachers.

Discussion

Considering the prevalence of ADHD, it is important for teachers in all educational stages to recognize the characteristic profile of the disorder and to be aware of the best measures and guidance in terms of intervention for this student group (Murtani et al., 2020). Given the common prevalence of ADHD in both mainstream and special education settings, and considering previous studies indicating that teachers’ behaviors towards children with ADHD are influenced by their knowledge and attitudes, the current study sought to investigate the knowledge and attitudes of a large cohort of mainstream and special education teachers regarding ADHD, with the aim of providing a comprehensive description of their knowledge and attitudes. We aimed to investigate whether special education teachers possess more knowledge and have more positive attitudes towards ADHD than mainstream education teachers have. The similarity in demographic characteristics between the two groups allows us to infer that differences observed are likely due to their group affiliation (special education or mainstream), possibly stemming from differences in teacher training. Understanding such disparities in knowledge and attitudes towards ADHD may be crucial for informing educational policies and practices, potentially guiding the development of targeted training programs and interventions to enhance support for students with ADHD across different educational settings.

The finding that special education teachers were exhibited higher levels of knowledge than mainstream teachers, was consistent with previous findings (Lee et al., 2015; Stampoltzis & Antonopoulou, 2013). It should be noted that only one previous study (Brook et al., 2000) compared those two populations in Israel, and found no differences between the groups. However, the sample size was small, and it was conducted over 20 years ago, which is strengths the importance of our study. Although recent additions of special education courses to mainstream teacher training, our finding indicate that special education teachers still tend to possess higher knowledge levels, possibly due to the timing of their training in Israel before these changes were implemented (average years of teaching was 11 years). It will be interesting to repeat the study in a few years and to examine if this tendency will change. Some studies have used questionnaires to examine teachers' knowledge and

attitudes regarding ADHD. Findings have varied, with some studies indicating that teachers' knowledge regarding medication and intervention strategies significantly impacts their attitudes. However, the methodology and objectives of these studies vary, necessitating caution in drawing definitive conclusions. To address this, we employed the ASKAT questionnaire, validated across numerous studies, offering a comprehensive assessment of teachers' knowledge regarding ADHD symptoms, causes, treatments, and pedagogical perspectives.

Regarding attitudes, the finding that special education teachers demonstrated more positive attitudes towards ADHD than mainstream teachers, was aligning with studies suggesting that greater knowledge on ADHD teachers possess, the more positive their attitudes are (Hosseinnia et al., 2020; Lasisi et al., 2017; Toye et al., 2019). This finding may also be influenced by the fact that significantly more special education teachers reported currently teaching ADHD's students, potentially facilitating direct contact that shape their knowledge and attitudes (Al-Moghamsi & Aljohani, 2018; Anderson et al., 2017). Consistent with findings from Brook et al. (2002) and Liviatan (2015), which demonstrated that overall teachers in Israel possess high levels of knowledge and hold positive attitudes towards ADHD, the results of the current study revealed that participants collectively displayed medium-high levels of knowledge regarding ADHD and overall positive attitudes towards the disorder.

Our study found positive and negative attitudes simultaneously, as was also found by Anderson et al. (2017) and Cueli et al. (2022), suggesting ambivalent attitudes. It was previously suggested that ambivalent attitudes can lead to inconsistent decisions and actions regarding students with ADHD (Anderson et al., 2017).

While our study corroborates previous research findings, it makes a significant contribution by reinforcing the reliability of these findings within the context of the Israeli educational system. Replicating results across different populations and settings is crucial in educational research to ensure the generalizability and robustness of conclusions. By confirming that special education teachers possess more knowledge and hold more positive attitudes toward ADHD than their mainstream counterparts, we provide additional evidence supporting the consistency of these findings. Moreover, our study offers unique insights into the specific demographic and contextual factors that influence teacher knowledge and attitudes in Israel. This adds a valuable dimension to the existing literature, highlighting the need for targeted interventions and professional development tailored to the local context. Therefore, our research not only supports the reliability of previous studies but also emphasizes the importance of context-specific strategies to improve teacher training and student outcomes. The second research objective aimed to examine the relationship between teachers' knowledge and attitudes within each of the two groups. The notable finding of a significant correlation between knowledge and attitude toward ADHD among mainstream teachers, was consistent with findings by Mulholland et al. (2015), perhaps indicating that it could be a multi-cultural perspective and should be further examine. However, this correlation was not evident among special education teachers in our study, indicating that this discrepancy may be attributed to the fact that majority of participants in the special education group possessed high knowledge levels and very positive attitudes towards ADHD, as hypothesized, whereas not all participants in the mainstream group shared such high knowledge levels and positive attitudes. Furthermore, the significant difference that was found between the two study groups was not found regarding negative attitudes towards ADHD, which may also be explained by the higher knowledge levels.

Finally, we examined whether any of the demographic measures may account for group differences. Previous studies found that teachers' years of experience influence their knowledge levels and subsequently their positive attitudes (Mulholland et al., 2015; Youssef

et al., 2015). However, only one study by Al-Omari et al. (2015) found no discernible differences in the demographic groups they examined concerning primary school teachers' attitudes towards ADHD. Notably, the teachers in their sample exhibited low knowledge scores overall and appeared to hold negative attitudes towards ADHD. In the current study, it was found that female teachers, those specializing in special education, or currently teaching ADHD's student, demonstrated higher knowledge on ADHD, consistent with the higher percentage of female teachers both in our sample and the general teacher population. Those results may indicate the importance of intensive teacher training regarding ADHD, as well as the value of being engaged with students with ADHD. Regarding teachers' attitudes, outcomes showed that the age group of the students being taught significantly influencing teachers' attitudes, The result that younger students correlating with more positive attitudes may indicate the comparatively less demanding academic requirements of younger children. Also, it may be attributed to the potential compensatory abilities of some young ADHD students, presenting a more functional image than older children. Another demographic characteristic that was found to impact attitudes is the age of the teachers. The finding that younger teachers, both in mainstream and special education, exhibiting more positive attitudes is align with the assumption, that younger teachers may have undergone more targeted ADHD training during their education compared to older teachers. Finally, the higher proportion of children with ADHD in special education classes (75% compared to 12.5% in mainstream classes) likely influences the amount of time and exposure that teachers have with ADHD's students.

The significance of our findings extends beyond merely identifying knowledge and attitude gaps. By pinpointing specific areas where mainstream teachers may require additional support and training, this research can inform the development of targeted interventions and professional development programs. These programs can be designed to enhance teachers' understanding of ADHD, thereby improving their ability to support students with ADHD in the classroom. Improved teacher knowledge and attitudes can lead to better identification of ADHD symptoms, more effective classroom strategies, and a more inclusive learning environment. Ultimately, this research has the potential to influence educational policies, promote inclusive practices, and improve the academic and social outcomes for children with ADHD and their families.

Conclusions and Limitations

The current study examined the knowledge and attitudes toward ADHD among a substantial cohort of in-service teachers, representing the first comprehensive comparison of mainstream and special education teachers in Israel in recent years. Our study has several significant implications. Overall, it appears that teachers in Israel possess a good level of knowledge about ADHD. However, there is potential for improvement, particularly in the training provided to mainstream teachers. Nevertheless, a lack of teacher knowledge of ADHD has been consistently identified as a key obstacle in addressing the needs of children with ADHD (Flanigan & Climie, 2018). Consistent with our hypothesis, special education teachers demonstrated higher levels of knowledge and more positive attitudes towards ADHD than mainstream teachers.

The observation that younger teachers exhibit higher levels of knowledge and more positive attitudes might suggests a potential shift in the educational system. Nonetheless, there remains a pressing need for enhanced in-service teacher training, particularly for teachers with extensive experience in the field. Moreover, our results indicate that teachers tend to hold more positive attitudes towards ADHD when teaching younger students. This

observation underscores a gap in the existing literature, which predominantly focuses on interventions and teaching strategies for elementary school students, leaving a substantial void in knowledge concerning older students. These findings underline the significance of demographic factors in shaping teachers' perceptions and understanding of ADHD, highlighting the potential impact of specific characters such as gender, specialization, teaching experience with ADHD students, and age. It may also inform targeted interventions and professional development programs.

Finally, our results revealed the necessity of promoting educational training programs about ADHD and highlight the importance of providing pre-service teachers with practical experience in teaching children with ADHD and offering targeted training to mainstream teachers. Such initiatives can play a pivotal role in enhancing teachers' understanding and support for students with ADHD, ultimately fostering more inclusive and supportive learning environments.

However, the study has several limitations. Firstly, our questionnaire did not inquire about the primary disability of the students taught by special education teachers, which could vary significantly and influence their exposure to "pure" cases of ADHD. Also, we did not capture information about the number of ADHD-related courses teachers underwent post-BA degree. Given the yearly professional training courses teachers undergo in Israel, this additional training may contribute to their knowledge base. Moreover, previous studies emphasized the role of years of experience and specific interactions with children with ADHD in shaping teachers' knowledge and attitudes (Jarque et al., 2007; Soriano-Ferrer & Echegaray, 2019). While our study aligns with these findings and delves into additional variables, further research is needed to provide a more comprehensive understanding of these external factors.

Previous studies (Alkahtani, 2013; Amado Luz et al., 2021) have associated positive attitudes and higher knowledge levels regarding ADHD with teachers' self-efficacy, which in turn is linked to knowledge, training, and experience. Although not examined in the current study, it is possible that special education teachers with higher knowledge and experience working with children with ADHD also possess higher self-efficacy. Future research should explicitly explore the relationships between self-efficacy, knowledge, and attitudes among teachers.

Future studies could investigate the knowledge and attitudes of teachers in training and track these teachers over time to examine the impact of experience, exposure, and accumulating knowledge regarding children with ADHD on their knowledge and attitudes. Additionally, examining whether knowledge and attitudes regarding ADHD translate into effective teaching practices and student outcomes would be valuable. Comparison between pre-service teachers at different training stages as well as a systematic assessment of teachers (mainstream and special education) across different career stages could provide valuable insights. Furthermore, considering the cultural context of ADHD attitudes is crucial. Cross-cultural comparisons of ADHD knowledge and attitudes could shed light on how cultural environments shape teachers' perspectives.

Overall, this study highlights the need to increase the level of teacher training as a way of minimizing negative attitudes toward ADHD. The observation that special education teachers who received intensive training regarding children with ADHD, as well as those currently teaching students with ADHD, demonstrated higher knowledge levels as expected. Moreover, younger teachers exhibited higher levels of knowledge and more positive attitudes, highlighting the importance of providing pre-service teachers with practical experience in teaching children with ADHD and offering targeted training to mainstream teachers.

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