



***Inclusion of Students on the Autism Spectrum:
 The Impact of Knowledge and Experience Among Preschool
 and Early Childhood Educators
 Nauczyciele przedszkoli i edukacji wczesnoszkolnej
 wobec inkluzji uczniów w spektrum autyzmu: rola wiedzy
 i stażu pracy***

ABSTRACT

RESEARCH OBJECTIVE: This article examines, both theoretically and empirically, the factors that can promote teachers' positive attitudes toward the inclusion of children with ASD.

THE RESEARCH PROBLEM AND METHODS: The study utilized the Teachers' Multidimensional Scale of Attitudes Toward Inclusive Education, an experimental version of the Autism Knowledge Questionnaire for Professionals, and a demographic questionnaire to explore the relationship between teachers' knowledge and their attitudes.

THE PROCESS OF ARGUMENTATION: The article first provides an overview of autism spectrum disorder (ASD), including the difficulties associated with functioning in a school setting. It then reviews previous research on the factors influencing attitudes toward inclusion. Finally, the study's methods, results, and discussion are presented.

RESEARCH RESULTS: Findings indicate that teachers demonstrate moderate knowledge of autism, with the highest levels of understanding in ASD symptoms and the lowest in therapy methods and interventions. Additionally, greater knowledge of therapy methods correlates with the behavioral component of attitudes toward inclusion. However, no significant correlation was found between knowledge and the cognitive or emotional components of attitudes.

CONCLUSIONS, RECOMMENDATIONS, AND APPLICABLE VALUE OF RESEARCH: The results suggest that teachers with higher knowledge are more likely to take concrete actions to include students with ASD in mainstream classrooms. Since this study was a pilot, further research is needed to investigate additional factors influencing teachers' attitudes toward inclusion.

→ **KEYWORDS:** **INCLUSIVE EDUCATION, INCLUSION, ATTITUDES, AUTISM SPECTRUM DISORDER, KNOWLEDGE ABOUT AUTISM**

Suggested citation: Rybka, A. (2025). Inclusion of Students on the Autism Spectrum: The Impact of Knowledge and Experience Among Preschool and Early Childhood Educators. *Horizons of Education*, 25(70), 111–120. <https://doi.org/10.35765/hw.2025.2570.12>

STRESZCZENIE

CEL NAUKOWY: W artykule rozważano (teoretycznie i empirycznie) czynniki mogące sprzyjać pozytywnemu nastawieniu nauczycieli wobec inkluzji dzieci z ASD.

PROBLEM I METODY BADAWCZE: Sformułowano problem dotyczący związków pomiędzy wiedzą o autyzmie nauczycieli przedszkoli i edukacji wczesnoszkolnej oraz stażem pracy a postawami wobec edukacji włączającej uczniów z ASD. W celu uzyskania odpowiedzi zastosowano: Wielowymiarową skalę postaw wobec edukacji włączającej, eksperymentalną wersję Kwestionariusza wiedzy o autyzmie i ankietę demograficzną.

PROCES WYWODU: Opisano trudności w funkcjonowaniu ucznia z ASD w kontekście szkolnym. Na podstawie przeglądu dotychczasowych badań omówiono korelaty postaw wobec inkluzji. Zaprezentowano metody, narzędzia, wyniki i dyskusję nad badaniami własnymi.

WYNIKI ANALIZY NAUKOWEJ: Wyniki przeprowadzonych badań wskazują, że nauczyciele prezentują przeciętną wiedzę na temat autyzmu. Wyższy poziom wiedzy o terapii koreluje z behawioralnym aspektem postaw wobec inkluzji. W odniesieniu do komponentu poznawczego i emocjonalnego postawy nie zaobserwowano istotnych korelacji z posiadaną wiedzą. Nie stwierdzono związków pomiędzy stażem pracy a postawami.

WNIOSKI, REKOMENDACJE I APLIKACYJNE ZNACZENIE WPŁYWU BADAŃ: Otrzymane wyniki sugerują, że nauczycielki o wyższej wiedzy wykazują większą gotowość do podejmowania konkretnych działań włączających. Omówione badania miały charakter pilotażowy. Ważne wydaje się kontynuowanie podjętych rozważań i przyjrzenie innym korelatom postaw nauczycieli wobec inkluzji.

→ **SŁOWA KLUCZOWE:** EDUKACJA WŁĄCZAJĄCA, INKLUZJA, POSTAWY, ZABURZENIE SPEKTRUM AUTYZMU, WIEDZA O AUTYZMIE

Introduction

Autism spectrum disorder (ASD) is a complex neurodevelopmental condition characterized by difficulties in social communication and distinct patterns of behavior, interests, and activities (American Psychiatric Association [APA], 2013). In recent years, the understanding of autism has shifted toward a more fluid spectrum rather than distinct diagnostic categories (Lord & Jones, 2012). The DSM-5 (APA, 2013) combined autistic disorder, Asperger's disorder, childhood disintegrative disorder, and pervasive developmental disorder – not otherwise specified – into a single classification: autism spectrum disorder. The World Health Organization (WHO) has adopted a similar framework in its ICD-11 classification (WHO, 2019).

ASD diagnosis is based on two core domains: deficits in social-emotional interactions and restricted or repetitive behaviors and interests. For educators, teaching students

with ASD requires an in-depth understanding of how these traits shape their interactions, cognitive processing, and behavioral responses (Kossewska et al., 2021). Some students may struggle to initiate conversations, engage with peers, or interpret non-verbal messages, while others may exhibit heightened sensitivity to sensory stimuli or have trouble adjusting to change. Communication barriers – such as difficulty deciphering others' mental states, interpreting figurative expressions, or reading social cues – can also complicate classroom interactions, especially in group settings.

A significant consideration in ASD education is the sheer variability among the population. Autism presents with considerable heterogeneity, not only in symptomatology but also in co-occurring cognitive, emotional, and motor development (Bialecka-Pikul, 2011; Pisula, 2012). These differences appear between individuals as well as within the same individual over time, as symptoms may change in form and intensity (Waizbard-Bartov & Miller, 2023). This unpredictability makes it difficult for teachers to implement a one-size-fits-all approach. Educators often wrestle with adapting their teaching practices to meet the social, emotional, and behavioral needs of students on the spectrum. Many report feeling unprepared and uncertain about their ability to support students with ASD, citing a lack of specialized training and limited professional development opportunities (Anglim et al., 2018; Kossewska et al., 2019). Their perceptions of students' behaviors, communication styles, and symptom severity play a key role in creating an inclusive educational environment (Russell et al., 2023; Teffs & Whitbread, 2009).

Let's consider three important questions: Do teachers' attitudes matter for inclusion, and if so, why? How are these attitudes influenced by the type of student disability? And what factors correlate with such attitudes? In psychology, attitudes are defined as a consistent tendency to evaluate a person, object, or event positively or negatively (Reber & Reber, 2008). They consist of three components: cognitive, affective, and behavioral (Supriyanto, 2019). Everyday experiences, social psychology principles such as the self-fulfilling prophecy and the Pygmalion effect, and research findings all suggest that positive teacher attitudes facilitate successful inclusion of students with special educational needs into mainstream education (Horrocks et al., 2008). A teacher's beliefs, feelings, and behaviors appear to be key for successfully implementing inclusive practices (Ainscow, 2007).

However, teachers generally have more positive attitudes toward including students with physical or sensory disabilities and learning difficulties than those with emotional disturbances, intellectual disabilities, or behavioral issues (de Boer et al., 2011). It would seem that children with autism spectrum disorder (ASD), due to deficits in these areas, are often perceived by teachers as difficult to include (Anglim et al., 2018). Several factors have been found to influence teachers' attitudes toward inclusive education, including gender, age, teaching experience, and sense of efficacy. Experience working with students with disabilities is particularly significant (Russell et al., 2023). It can be assumed that contact with individuals with disabilities, whether in professional or personal contexts, provides both procedural and declarative knowledge about specific conditions. This assumption is corroborated by studies showing that teachers with relatives who

have ASD and experience working with students on the spectrum demonstrate greater knowledge (Nowakowska & Pisula, 2018). Mudło-Głagolska and Lewandowska (2018) identify training and qualifications – seen as sources of knowledge – as crucial teacher resources that promote positive attitudes toward inclusion. Investigating the relationship between knowledge of autism and teachers' attitudes is a worthwhile direction for further research. In Poland, Nowakowska and Pisula (2018) laid the groundwork for such studies by examining the levels of autism knowledge among teachers and their attitudes toward inclusion.

Research Methods and Tools

The main objective of this study was to characterize the relationships between preschool and early childhood education teachers' knowledge of autism, their professional experience, and their attitudes toward inclusive education for students on the autism spectrum. Two research hypotheses were formulated:

1. The greater the knowledge of autism, the more positive the attitudes (cognitive, emotional, and behavioral) toward the inclusion of students on the autism spectrum among preschool and early education teachers.
2. Teachers' roles and years of professional experience differentiate their attitudes toward inclusive education.

To test these hypotheses, data were collected from 73 teachers in April and May 2023 at randomly selected preschools and elementary schools in a regional capital city. Initially, it was planned that teachers would complete questionnaires in the presence of a researcher. However, due to organizational and space constraints, this was not feasible. Instead, the questionnaires were distributed individually to each teacher and collected about a week later. Participants provided voluntary, written consent and were informed of their right to withdraw from the study at any time. Data from 71 teachers were included in the analysis: 51% from preschool education and 49% from early childhood education.

The participants' ages ranged from 25 to 60 years, with 23% between 25 and 35 years and 21% aged 56 or older. The majority (41%) had over 20 years of teaching experience, while only 4% had less than one year. In terms of professional advancement, the sample included 52% certified teachers, 23% appointed teachers, 21% contract teachers, and 4% trainees and early-career teachers. Data collection involved standardized and experimental research tools. To measure attitudes, the study used the Multidimensional Attitude Towards Inclusive Education Scale (MATIES) developed by Mahat (2008) and translated by Mudło-Głagolska (2021). The scale assesses cognitive, affective, and behavioral dimensions through 18 statements, six for each dimension. Responses are rated on a six-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). Nine items were reverse-scored. The reliability of the Polish version was tested on samples of preschool, early childhood, elementary, and high school teachers. Validation studies indicated good internal consistency, with Cronbach's alpha ranging from

0.71 to 0.87 for the cognitive dimension, 0.84 to 0.89 for the affective dimension, and 0.89 to 0.92 for the behavioral dimension (Mudło-Głagolska, 2021).

To assess teachers' knowledge of autism, this study employed a Polish translation of the Autism Spectrum Knowledge Scale Professional Version (ASKSP) (McClain et al., 2019). The scale includes 31 questions covering five domains:

- causes and prevalence,
- symptoms and behaviors,
- diagnosis and assessment,
- treatment, and
- prognosis.

Participants indicated whether each statement was true or false, with 16 items having "true" as the correct answer. Scores for individual subscales and the overall scale were calculated by summing the number of correct responses. Although Poland has some existing autism knowledge questionnaires (e.g., Suchowierska & Walczak, 2013; Kossowska & Aliieva, 2020; Nowakowska & Pisula, 2018), none are specifically tailored for professionals working in therapy or education or incorporate the updated diagnostic criteria and current research on autism across multiple domains.

To adapt the ASKSP for this study, permission was secured from the authors. Two psychologists independently translated the scale, reconciled their versions, and performed back-translation. The answer key was reviewed, and two corrections were made. One concerned differences in autism prevalence among ethnic groups, and the other involved the qualifications required to diagnose autism. A systematic review of global studies on autism prevalence indicates that geographic disparities are attributable to methodological and cultural-economic factors rather than racial differences (Chiarotti & Venerosi, 2020). Additionally, in Poland, only psychiatrists can formally diagnose autism, which makes "true" the correct response (in contrast to the original scale's "false"). The internal consistency of the original scale was low ($\alpha = .60$), likely due to its binary (true/false) response format. Additionally, a demographic questionnaire was developed to collect data on participants' age, gender, work setting, years of experience, and professional advancement level.

Key Findings From the Analysis

To test the hypotheses, statistical analyses were performed using STATISTICA 13. The findings indicate an average level of autism knowledge among participants, who answered 54.88% of questions correctly. Teachers showed the strongest knowledge of symptoms and behaviors, with 80.68% correct responses, but their understanding of therapeutic methods and options was notably weaker, at just 30.7% correct responses. Knowledge levels varied across subscales, particularly for questions regarding prognosis, such as the likelihood of learning difficulties or the ability to work and live independently. The highest proportion of high scores was observed in the Symptoms and Behaviors

domain, while the Therapy domain exhibited predominantly low scores. Knowledge scores on all subscales deviated from a normal distribution.

Table 1 presents detailed descriptive statistics on autism knowledge.

Table 1. Knowledge of autism in preschool and early childhood education teachers

	<i>N</i>	<i>M</i>	<i>Me</i>	<i>SD</i>	Min.	Max.	<i>Ske</i>	<i>K</i>	<i>W</i>	<i>p</i>
Autism knowledge (total)	71	16.76	17.00	3.36	8.00	23.00	−0.48	−0.44	0.96	0.02
Causes and prevalence	71	3.72	4.00	1.16	1.00	6.00	−0.21	−0.62	0.91	0.000
Symptoms and behaviors	71	5.54	6.00	1.18	2.00	7.00	−1.13	1.15	0.84	0.000
Diagnosis and evaluation	71	3.02	3.00	1.29	0.00	6.00	1.14	−0.48	0.94	0.001
Therapy	71	1.53	1.00	0.98	0.00	5.00	0.59	0.92	0.88	0.000
Prognosis	71	2.92	3.00	1.00	1.00	5.00	−0.03	−0.62	0.90	0.000

Source: own research.

A detailed analysis of responses to individual questions revealed significant gaps. The question about the effectiveness of dietary restrictions (e.g., eliminating gluten) in autism treatment yielded the fewest correct responses (11.27%). Similarly, only 15.49% of participants correctly identified whether teachers can provide preliminary autism diagnoses. In contrast, 92.96% of participants correctly recognized that individuals with autism may have difficulties expressing themselves, and over 80% acknowledged potential co-occurrences of intellectual disabilities and motor clumsiness.

Table 2 presents the descriptive statistics for teachers' attitudes toward the inclusion of students with ASD. Overall, the results were moderately positive, with a mean score of 57.07 out of 108 possible points. Although high scores predominated, the emotional dimension exhibited a slight right-skewed distribution, which suggests that some participants may experience negative emotions toward inclusive education.

Table 2. Attitudes of preschool and early childhood education teachers toward inclusive education

	<i>N</i>	<i>M</i>	<i>Me</i>	<i>SD</i>	Min.	Max.	<i>Ske</i>	<i>K</i>	<i>W</i>	<i>P</i>
Attitudes (overall)	71	57.07	59.00	7.12	36.00	69.00	−0.81	0.21	0.95	0.003
Cognitive aspect	71	19.70	20.00	2.98	11.00	26.00	−0.51	0.80	0.96	0.04
Emotional aspect	71	17.92	17.00	5.59	6.00	36.00	0.75	1.04	0.96	0.02
Behavioral aspect	71	19.45	20.00	5.43	6.00	30.00	−0.44	−0.02	0.97	0.14

Source: own research.

To verify the first hypothesis, Spearman's rho correlation test was applied. The analysis revealed a statistically significant but weak positive correlation between knowledge

of autism therapy ($\rho = 0.24$, $p = 0.04$) and the behavioral attitudes toward inclusive education. No significant correlations were found between other areas of autism knowledge and the cognitive or emotional components of teachers' attitudes.

To further analyze the data, participants were divided into two subgroups based on their autism knowledge (low vs. high) using the median as the cutoff point. A series of Mann-Whitney U tests were conducted, with knowledge level as the independent variable and attitudes toward inclusive education as the dependent variables. The results showed that only knowledge of therapeutic methods significantly differentiated behavioral attitudes toward inclusion ($U = 447.5$, $p = 0.04$). Teachers with higher knowledge were more inclined to implement inclusive practices, such as adapting their classroom environments and modifying communication strategies to better support students with diverse needs. No other significant differences were found, and social desirability was ruled out as a factor affecting the results. These findings partially confirmed the first hypothesis.

Further analyses examined whether preschool and early elementary teachers differed in their knowledge and attitudes toward inclusive education. The results showed no significant differences, as both groups demonstrated similar levels of knowledge and comparable attitudes. Additionally, years of professional experience did not affect teachers' attitudes toward inclusion. Thus, the second hypothesis was not supported by the data.

Conclusions

The results of this study show that teachers' knowledge about autism remains moderate. Although some studies (e.g., Nowakowska & Pisula, 2018) suggest that teachers exhibit a relatively high level of awareness, others report persistent misconceptions and a more limited understanding (Sanz-Cervera et al., 2017). Teachers in this study showed greater understanding of visible aspects of autism, such as observable behaviors. Of particular concern is the lack of knowledge about therapeutic methods. Only 29.58% of teachers correctly recognized the existence of effective treatment options. Even fewer (38.8%) recognized social skills training as an evidence-based intervention. This gap in knowledge may be linked to inadequate professional training, prompting teachers to seek information from alternative sources, such as media narratives, which frequently offer inaccurate or oversimplified portrayals of autism and its treatments (Mittmann et al., 2024).

Interestingly, Kossewska and Aliieva (2020) found that Polish teachers displayed a strong understanding of specific instructional strategies. However, these researchers focused on teachers' self-perceived abilities to support students with ASD using these methods. In contrast, the ASKSP required teachers to assess the accuracy of statements about various therapeutic approaches, thus providing a more rigorous evaluation of evidence-based knowledge. The findings suggest that teachers with stronger knowledge of therapeutic methods are more inclined to adopt supportive practices. Evidence-based knowledge may boost teachers' sense of competence and agency in working with students on the autism spectrum (see Mudło-Glagolska & Lewandowska, 2018).

Studies consistently point to a link between teachers' belief in their own efficacy and their attitudes toward inclusive education (Yada et al., 2022). This relationship is particularly significant given the findings of the present study, which revealed no correlation between teachers' knowledge of autism symptoms or causes and their attitudes toward inclusion. Knowing about autism does not necessarily mean that teachers feel equipped to support students on the spectrum. These findings underscore the need for specialized training that provides accurate, evidence-based information about therapeutic strategies. Such training may bolster teachers' sense of competence when implementing inclusive practices in schools (Kossewska et al., 2019). Moreover, the absence of significant correlations between autism knowledge and the cognitive and emotional components of attitudes suggests that other factors influence teacher perceptions (see Mudło-Głagolska & Lewandowska, 2018).

In summary, this study sheds light on the connections between autism knowledge and attitudes toward inclusion. As the prevalence of autism spectrum disorder (ASD) continues to rise, investing in teacher training becomes even more pressing. Nielsen et al. (2024) report that ASD prevalence among children born between 2002 and 2015 reached 1.3% by age 12, with annual growth rates averaging 4.1% from age six onward (see also Talantseva et al., 2023).

It is important to acknowledge certain limitations of this study. First, the sample size was limited and did not represent the full demographic spectrum of Polish teachers. Only teachers from schools whose principals consented to participate were included. Additionally, factors such as prior experience working with students with ASD were not considered. Furthermore, the research tools used did not permit participants to freely express their views. Quantitative research, unlike qualitative studies, tends to show that teachers display more positive attitudes toward the inclusion of students with ASD (Leonard & Smyth, 2020).

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Source of funding

Lack of funding sources.

Disclosure statement

No potential conflict of interest was reported by the author(s).