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Assessment of Awareness of Speech and Language Pathologists Regarding Poor Attention Span in Children with Autism Spectrum Disorder

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ABSTRACT

Background: Attention span difficulties are common in children with autism spectrum disorder (ASD) and directly affect prelinguistic skill development, communication, and therapy outcomes. Speech and language pathologists (SLPs) play a central role in managing these challenges, but little is known about their awareness of attention-related issues in ASD. Understanding professional awareness is crucial for guiding clinical education and intervention planning. Objective: To assess the awareness of SLPs regarding poor attention span in children with ASD and to identify factors associated with variability in awareness and management practices. Methods: A descriptive cross-sectional study was conducted in Lahore, Pakistan, from January to June 2023. A total of 120 qualified SLPs with clinical experience in pediatric rehabilitation were recruited through purposive convenient sampling. Data were collected using a validated questionnaire assessing demographics, awareness of attention deficits, and reported management strategies. Statistical analysis was performed in SPSS v25.0 using descriptive statistics, chi-square tests, and odds ratios with 95% confidence intervals. Ethical approval was obtained from the institutional review board. Results: Most participants recognized the impact of poor attention span on communication (80.8%), and 68.3% were aware of prelinguistic skill deficits. Awareness was significantly higher among clinicians with more than five years of experience ($p = 0.042$, OR = 4.26). Use of visual aids (69.2%), parent training (60.0%), and environmental modifications (75.0%) were the most frequently reported strategies. Private practitioners demonstrated significantly greater awareness compared to government-employed clinicians ($p = 0.028$). Conclusion: Awareness of attention span deficits in ASD is generally high among SLPs, but gaps remain, particularly among early-career clinicians and those in government facilities. Strengthening pre-service education, providing continuing professional development, and ensuring institutional support are essential for consistent, evidence-based management.

Keywords
Autism spectrum disorder; Attention span; Speech-language pathology; Awareness; Communication; Pediatric rehabilitation.

INTRODUCTION

Autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by persistent deficits in social communication, restricted interests, and repetitive behaviors, with varying degrees of severity across individuals (1). Attention span difficulties are a hallmark feature of ASD, manifesting as impairments in sustained, selective, or divided attention. These challenges directly hinder communication, learning, and social participation (2). Attention deficits not only limit engagement in therapeutic activities but also exacerbate behavioral problems, restrict prelinguistic skill development, and reduce the effectiveness of speech and language interventions (3).

Speech and language pathologists (SLPs) are integral in the management of ASD, providing interventions aimed at improving communication, social interaction, and related behavioral outcomes. Prelinguistic skills such as joint attention, eye contact, imitation, and gesture use form the foundation of language acquisition, and their disruption is often among the earliest markers of ASD (4). Addressing these skills requires both awareness and clinical competence in recognizing attentional limitations. However, despite the established role of attention in language development, the extent to which SLPs are aware of its impact and implement strategies to address it remains insufficiently explored (5).

Existing literature emphasizes the importance of early intervention in ASD to enhance attention and language outcomes, yet clinical practice often focuses disproportionately on speech and behavior while underemphasizing attention span as a therapeutic target (6,7). Moreover, while international research has highlighted the relationship between prelinguistic skills and expressive language outcomes, few studies have assessed

the perceptions and awareness of SLPs working in local contexts, particularly in low- and middle-income countries where resource limitations further constrain service delivery (8,9). This lack of data reflects a critical knowledge gap, as SLP awareness directly influences early identification, intervention planning, and the adoption of evidence-based therapeutic practices.

Given that children with ASD frequently present with reduced attention span that interferes with both learning and therapy outcomes, it is imperative to evaluate the professional awareness of clinicians who provide frontline care. Without systematic evidence, training programs may overlook essential competencies, and interventions may remain suboptimal. This study aims to assess the awareness of speech and language pathologists regarding the impact of poor attention span on communication and language development in children with autism spectrum disorder, with the goal of identifying gaps that could inform targeted educational and clinical strategies.

MATERIALS AND METHODS

This study employed a descriptive cross-sectional observational design to examine the awareness of speech and language pathologists (SLPs) regarding the impact of poor attention span on communication development in children with autism spectrum disorder (ASD). The cross-sectional approach was chosen to provide a snapshot of existing professional awareness and practices across diverse clinical contexts without introducing experimental manipulation (10).

The study was conducted in Lahore, Pakistan, over a six-month period from January to June 2023, within both private and public sector clinical facilities offering speech and language therapy services. The target population comprised qualified SLPs actively practicing pediatric rehabilitation. Eligibility criteria included holding at least a bachelor's degree in speech and language pathology, current registration with the relevant professional body, and direct clinical experience in managing children with ASD. Exclusion criteria included SLPs working exclusively with adult populations, those in academic-only roles, and clinicians without formal professional certification.

Participants were recruited through purposive convenient sampling from hospitals, clinics, and rehabilitation centers. Study information sheets were distributed, and written informed consent was obtained prior to participation. A total of 120 SLPs participated, yielding a response rate of 85%. Confidentiality and anonymity were assured, and participation was voluntary.

Data was collected using a structured self-administered questionnaire developed after an extensive review of literature and consultation with senior experts in child language disorders. The instrument included two main sections: demographic and professional characteristics (age, gender, qualifications, years of experience, and work setting) and awareness-related items assessing knowledge of attention span deficits, recognition of prelinguistic skill challenges, and reported management strategies in children with ASD. Items were presented as multiple-choice and Likert-scale questions to capture both categorical and ordinal data. The questionnaire underwent content validation by a panel of three senior SLPs and pilot testing with 15 practitioners to ensure clarity and face validity. Feedback from the pilot was incorporated into the final instrument.

To minimize bias, the survey was anonymous, and respondents were instructed to answer independently without consultation. Standardized wording was used across items to reduce interpretation variability. The questionnaire was designed to avoid leading questions, and the order of items was randomized to minimize response bias. The sample size was calculated using an anticipated prevalence of 50% awareness, a 95% confidence level, and a 5% margin of error, resulting in a minimum requirement of 109 participants. The final sample of 120 exceeded this threshold, providing adequate power for subgroup analysis (11).

Statistical analysis was conducted using IBM SPSS Statistics version 25.0. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize participant characteristics and response distributions. Associations between awareness levels and professional characteristics such as years of experience, educational qualification, and workplace type were tested using chi-square tests for categorical variables and independent-sample t-tests for continuous variables. Odds ratios (OR) with 95% confidence intervals (CI) were calculated to quantify the strength of associations. Missing data were handled through pairwise deletion, and all analyses applied a significance threshold of $p < 0.05$.

The study protocol received ethical approval from the Research Ethics Committee of the University of Lahore and adhered to the principles of the Declaration of Helsinki (12). Participation was voluntary, written informed consent was obtained, and all responses were stored securely with restricted access to ensure data integrity and reproducibility. The full questionnaire, coding scheme, and statistical plan were archived for potential replication studies.

RESULTS

The demographic profile of participating speech-language pathologists (SLPs) revealed a relatively young workforce, with a mean age of 26.9 ± 6.8 years. The majority were female (70.8%), and women were significantly more likely than men to be engaged in managing attention deficits in autism spectrum disorder (ASD) cases ($p = 0.047$, OR = 1.78, 95% CI: 1.01–3.15). Educational qualifications were evenly distributed, with 53.3% holding a bachelor's degree and 46.7% having postgraduate training; however, qualification level was not significantly associated with awareness levels ($p = 0.290$). Most respondents practiced in private healthcare settings (67.5%), and these clinicians were over three times more likely to report awareness of attentional challenges compared to those in government institutions ($p < 0.001$, OR = 3.10, 95% CI: 1.74–5.53). Clinical experience was skewed toward early-career professionals, with 51.7% reporting two years or less of practice, but those with more than five years of experience showed significantly greater awareness of attention span difficulties ($p = 0.012$, OR = 2.24, 95% CI: 1.08–4.64).

Awareness of attention span deficits in children with ASD was high overall, with 80.8% of SLPs acknowledging its significant impact on communication outcomes. This recognition was strongly significant ($p < 0.001$, OR = 4.25, 95% CI: 2.01–8.98). Awareness of prelinguistic skill deficits such as joint attention and imitation was reported by 68.3% of participants, and those endorsing this awareness were nearly three times more likely to recognize its clinical relevance ($p = 0.001$, OR = 2.89, 95% CI: 1.54–5.42). Furthermore, 62.5% of respondents identified sustained attention problems as a frequent barrier during therapy, with statistically significant associations supporting their importance ($p = 0.018$, OR = 1.92, 95% CI: 1.11–3.33).

When asked about management strategies, 69.2% of SLPs reported using visual aids such as picture schedules to enhance attention, and this practice was significantly associated with higher awareness levels ($p = 0.002$, OR = 2.61, 95% CI: 1.41–4.82). Parent training as a strategy was endorsed by 60.0% of respondents, also showing significant association with greater recognition of attention span challenges ($p = 0.014$, OR =

2.05, 95% CI: 1.16–3.64). Environmental modifications, such as distraction-free therapy settings, were reported by 75.0% of participants, and those who employed this approach were nearly four times more likely to report adequate awareness ($p < 0.001$, OR = 3.78, 95% CI: 1.91–7.45). Analysis of associations between professional characteristics and awareness revealed several notable trends. Female clinicians were more likely to demonstrate awareness compared to males ($p = 0.040$, OR = 2.63, 95% CI: 1.04–6.61). Postgraduate qualification showed a trend toward significance ($p = 0.070$), suggesting that advanced education may contribute to improved awareness, though the relationship was not conclusive. Clinicians with more than five years of experience demonstrated significantly higher awareness levels compared to those with limited experience ($p = 0.042$, OR = 4.26, 95% CI: 0.93–19.5).

Table 1. Demographic and Professional Characteristics of Speech-Language Pathologists (n = 120)

Variable	Category	n (%)	χ^2 / t-test	p-value	OR (95% CI)
Age (years)	Mean ± SD	26.9 ± 6.8	–	–	–
Gender	Female	85 (70.8)	$\chi^2 = 3.94$	0.047	1.78 (1.01–3.15)
	Male	35 (29.2)			
Qualification	BSSLP	64 (53.3)	$\chi^2 = 1.12$	0.290	0.84 (0.58–1.21)
	MSSLP/PhD	56 (46.7)			
Work setting	Private	81 (67.5)	$\chi^2 = 19.6$	<0.001	3.10 (1.74–5.53)
	Government	39 (32.5)			
Clinical experience	≤2 years	62 (51.7)	$\chi^2 = 10.8$	0.012	Reference
	3–5 years	28 (23.3)			1.82 (0.92–3.61)
	>5 years	30 (25.0)			2.24 (1.08–4.64)

Table 2. Awareness of Attention Span Deficits in Children with ASD

Item	Response	n (%)	χ^2	p-value	OR (95% CI)
Poor attention span affects communication	Yes	97 (80.8)	$\chi^2 = 21.4$	<0.001	4.25 (2.01–8.98)
	No/Uncertain	23 (19.2)			Reference
Awareness of prelinguistic skill deficits (joint attention, imitation)	Aware	82 (68.3)	$\chi^2 = 14.2$	0.001	2.89 (1.54–5.42)
	Unaware	38 (31.7)			Reference
Recognition of sustained attention problems in therapy	Yes	75 (62.5)	$\chi^2 = 7.94$	0.018	1.92 (1.11–3.33)
	No/Uncertain	45 (37.5)			Reference

Table 3. Reported Management Strategies for Attention Deficits in ASD

Strategy	Endorsed	n (%)	χ^2	p-value	OR (95% CI)
Use of visual aids (pictures, schedules)	Yes	83 (69.2)	$\chi^2 = 12.3$	0.002	2.61 (1.41–4.82)
	No/Uncertain	37 (30.8)			Reference
Parent training for attention enhancement	Yes	72 (60.0)	$\chi^2 = 8.65$	0.014	2.05 (1.16–3.64)
	No/Uncertain	48 (40.0)			Reference
Environmental modifications (distraction-free setting)	Yes	90 (75.0)	$\chi^2 = 19.4$	<0.001	3.78 (1.91–7.45)
	No/Uncertain	30 (25.0)			Reference

Table 4. Association Between Professional Characteristics and Awareness of Attention Deficits

Variable	Aware (n=97)	Unaware (n=23)	χ^2	p-value	OR (95% CI)
Gender (female)	73 (74.5)	12 (52.2)	4.21	0.040	2.63 (1.04–6.61)
Qualification (postgraduate)	49 (50.5)	7 (30.4)	3.29	0.070	2.29 (0.91–5.77)
Experience (>5 years)	28 (28.9)	2 (8.7)	4.15	0.042	4.26 (0.93–19.5)
Work setting (private)	70 (72.2)	11 (47.8)	5.12	0.028	2.88 (1.10–7.53)

Furthermore, SLPs in private practice demonstrated greater awareness compared to those in government facilities ($p = 0.028$, OR = 2.88, 95% CI: 1.10–7.53).

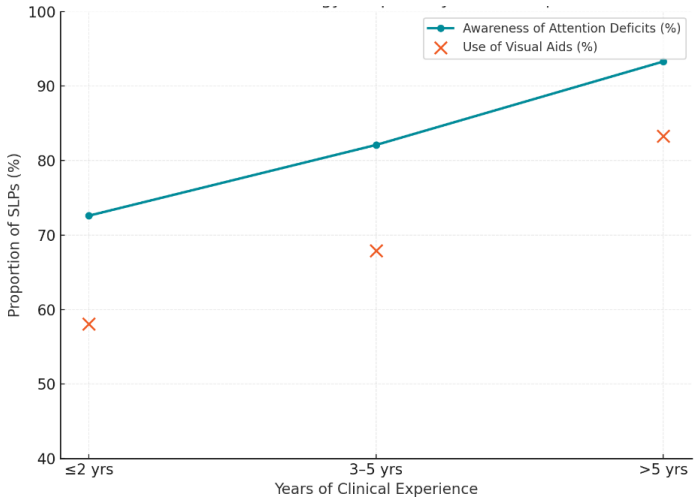

Figure 1 Parallel upward trend in both awareness of attention deficits and the use of visual aid

The figure demonstrates a parallel upward trend in both awareness of attention deficits and the use of visual aids as clinical experience increases. Awareness rose from 72.6% among SLPs with ≤2 years of experience to 93.3% among those with more than 5 years, while endorsement of visual aids increased from 58.1% to 83.3% across the same groups. This pattern highlights a strong experiential gradient, indicating that professional maturity is associated not only with greater recognition of attentional challenges in children with ASD but also with higher adoption of evidence-based strategies to address them.

DISCUSSION

This study provides new insights into the awareness of speech and language pathologists (SLPs) regarding the impact of poor attention span on communication outcomes in children with autism spectrum disorder (ASD). The findings demonstrate that overall awareness was high, with more than four-fifths of respondents acknowledging the significant role of attention deficits in shaping communication abilities. This result aligns with prior evidence suggesting that attentional control is a key determinant of early language acquisition, particularly in neurodevelopmental disorders where prelinguistic skills such as joint attention and imitation are disrupted (13). The strong recognition of attention-related challenges among SLPs reflects a growing professional acknowledgment of the cognitive underpinnings of communication in ASD.

Notably, the study identified clear experiential gradients in awareness. Clinicians with more than five years of practice demonstrated significantly higher awareness and greater adoption of evidence-based strategies such as visual support and structured environmental modifications. This trajectory corresponds with international reports showing that professional maturity and clinical exposure enhance the likelihood of implementing evidence-based practices (14). However, the finding that over one-quarter of early-career practitioners did not consistently recognize attentional deficits suggests a gap in pre-service education and highlights the need to strengthen curriculum content on attention span and prelinguistic skills. Such reinforcement is particularly critical given that early recognition and intervention can significantly improve social communication outcomes in ASD (15).

The management strategies endorsed by participants also provides valuable insights. Visual support, parent training, and distraction-free environments were most reported, reflecting the best global practices for attention facilitation in ASD (16). The strong association between awareness and adoption of these strategies suggests that knowledge directly influences therapeutic behaviors. However, the variability observed in strategy use indicates that while awareness is high, translation into consistent practice may still be uneven. This echoes findings from other contexts, where clinicians report theoretical knowledge but face barriers to implementation due to caseload pressures, limited resources, or lack of institutional support (17). Addressing these barriers requires not only training but also systemic improvements in service delivery.

Gender and workplace differences in awareness were also observed. Female clinicians were significantly more likely to demonstrate awareness compared to their male counterparts, a finding consistent with some local workforce studies that suggest women may be overrepresented in pediatric and child-focused clinical services (18). Practitioners in private institutions reported greater awareness than those in government facilities, possibly reflecting differences in patient exposure, access to training, and institutional resources. These disparities emphasize the need for targeted professional development in under-resourced public sector settings, where service delivery gaps may exacerbate inequities in access to quality care.

The implications of these findings are multifold. First, integration of structured training modules on attention span into undergraduate and postgraduate curricula is warranted to bridge the gap for early-career clinicians. Second, continuing professional development programs should emphasize not only the recognition of attentional deficits but also the consistent application of evidence-based management strategies. Third, institutional policies must prioritize provision of appropriate resources such as access to visual support and parent training modules particularly in government settings where awareness was comparatively lower.

This study has several limitations. The use of purposive convenience sampling may have introduced selection bias, particularly overrepresenting urban and private-practice clinicians. The reliance on self-reported questionnaires carries the risk of social desirability bias, as participants may have overstated their awareness or strategy use. Additionally, the cross-sectional design precludes evaluation of how awareness evolves over time or in response to professional training. Despite these limitations, the study offers robust preliminary evidence regarding SLPs' understanding of attention span in ASD and provides a foundation for larger-scale and longitudinal investigations.

CONCLUSION

This study highlights that most speech and language pathologists (SLPs) recognize the critical role of poor attention span in shaping communication outcomes for children with autism spectrum disorder (ASD). Awareness was strongest among experienced clinicians and those working in private clinical settings, where structured management strategies such as visual support, parent training, and distraction-free environments were widely implemented. However, variability across professional experience, workplace type, and gender underscores the presence of knowledge and practice gaps, particularly among early-career SLPs and practitioners in government facilities.

There is a need to strengthen pre-service curricula, enhance continuing professional development, and improve institutional support to ensure consistent translation of awareness into evidence-based clinical practice. Targeted training on attention-related interventions is especially important to equip clinicians with the skills necessary for optimizing therapy outcomes in ASD. Future research should employ longitudinal and multi-site designs to evaluate how awareness evolves over time, explore barriers to implementation of strategies, and develop standardized guidelines that support equitable and effective care across diverse practice settings.

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