

Behavioural Problems Associated with Autism Spectrum Disorder (ASD) from Teachers' Perspectives

Thaer Mohammed Ajouly, Doha Ahmad Alrousan, Fatmah Ahmed Al-Momani, Ashraf Fouad Kan'an

Faculty of Educational Sciences, Irbid National University, Irbid, Jordan

Reda Al-Mawadieh, Malek Jdaitawi

Early Childhood Department, Faculty of Educational Sciences, Zarqa University, Zarqa, Jordan

Maher A. Hassan

College of Education, Imam Abdulrahman bin Faisal University, Dammam, Saudi Arabia

Abdalmuttaleb Al-Sartawi

Ahlia University, Bahrain

Mohammed Aman*

University of Business and Technology, Jeddah, Saudi Arabia

The study investigated the prevalence and severity of behavioural problems associated with Autism Spectrum Disorder (ASD), while also identifying the most frequently observed behavioural patterns from the perspectives of teachers in Irbid Governorate. A descriptive survey design was employed, involving 230 teachers from public and private schools, as well as special education centres, who were selected using simple random sampling. The findings revealed that the overall prevalence of behavioural problems was moderate, with a mean score of 3.57. Among the behavioural dimensions, stereotypical and repetitive behaviours were the most prominent and were rated at a high level, followed by impulsivity and inattention, which also demonstrated high prevalence. Conversely, emotional and affective difficulties were reported at a moderate level, whereas

*Correspondence concerning this article should be addressed to Mohammed Aman, University of Business and Technology, Jeddah, Saudi Arabia.
 Email: m.aman@ubt.edu.sa

challenging behaviours and self-injurious behaviours exhibited the lowest prevalence and likewise remained within the moderate category. In light of these findings, the authors recommended implementing structured teacher training and professional certification programmes in behavioural intervention for educators supporting students with ASD, as such initiatives are likely to strengthen professional competence, improve behavioural observation skills, and promote greater instructional objectivity.

Keywords: Autism Spectrum Disorder, Behavioural Problems, Stereotyped Behaviours, Self-Efficacy

Introduction

behavioural manifestations that create considerable instructional and classroom management challenges for teachers (American Psychological Association, 2022). Understanding these behavioural characteristics is essential because they represent meaningful expressions of children's underlying needs rather than merely unusual actions that deviate from expected norms. Teachers' perspectives are particularly valuable in recognising these behaviours, as they interact with students daily and are well positioned to observe the academic and social behaviours that shape their educational experiences and developmental outcomes (Gómez-Marí et al., 2022).

Despite growing efforts towards educational inclusion, a significant challenge persists due to the increasing enrolment of students with ASD in mainstream classrooms without a corresponding improvement in teachers' capacity to manage complex behavioural manifestations effectively. Behaviours including stereotypical movements, emotional outbursts, and difficulties adapting to changes in classroom routines not only hinder students' learning progress but also disrupt classroom dynamics and increase teachers' emotional and professional workload (Brunsting et al., 2022). This challenge is intensified by the limited availability of reliable assessment instruments that enable teachers to evaluate behavioural patterns systematically and accurately, thereby constraining timely and effective intervention within school settings (Mallory & Keehn, 2021). Examining these issues through teachers' experiences provides valuable evidence for researchers and policymakers seeking to strengthen inclusive education. Without a comprehensive understanding of the nature and magnitude of behavioural difficulties encountered in classrooms, teacher preparation programmes are unlikely to equip educators with the competencies required to address these challenges, leaving behavioural difficulties as a major barrier to the successful inclusion of students with ASD.

The research problem is further reflected in the disconnect between clinical classifications of ASD and the behavioural realities encountered in everyday educational practice. Although clinical frameworks categorise ASD according to established diagnostic criteria, teachers are more frequently confronted with practical behavioural challenges, including poor emotional regulation,

aggressive outbursts, impulsive actions, and related classroom management difficulties that directly affect teaching effectiveness (Mallory & Keehn, 2021). Another important gap lies in the limited body of research that captures teachers' perspectives regarding the prevalence and severity of these behavioural difficulties. Consequently, many educational interventions are designed without adequately reflecting the behavioural challenges experienced in actual classroom settings, reducing their practical relevance and effectiveness for promoting inclusive education (Brunsting et al., 2022). Addressing this gap requires a stronger emphasis on teachers' viewpoints, as their direct classroom experience enables them to identify the behavioural concerns that warrant priority attention and targeted intervention.

The global rise in the identification of Autism Spectrum Disorder has intensified the educational significance of understanding its behavioural dimensions, with recent epidemiological synthesis estimating a worldwide prevalence of approximately one per cent and documenting steady increases in diagnosis across diverse regions (Zeidan et al., 2022). As a consequence, a growing proportion of autistic learners now attend mainstream and specialised settings, where teachers encounter behavioural profiles that are both varied and persistent. Contemporary evidence indicates that difficulties with emotion regulation are substantially more prevalent among autistic children than in the general population and are closely associated with heightened service use and classroom disruption (Conner et al., 2021). These behavioural manifestations are not peripheral features but are increasingly understood as central to the condition, reflecting the interaction between sensory processing differences, communication demands, and environmental expectations. Accordingly, teachers occupy a strategic vantage point for observing how such behaviours emerge and fluctuate across the school day, making their perspectives an indispensable source of evidence for shaping responsive and inclusive educational provision.

A further dimension of the research problem concerns the classroom conditions that shape how behavioural difficulties are expressed and interpreted. Mainstream environments frequently present complex sensory and attentional demands that can overwhelm autistic learners, contributing to distress, disengagement, and the intensification of repetitive or avoidant behaviours (Mallory & Keehn, 2021). Uncertainty and unexpected change are particularly challenging, and caregiver accounts consistently identify school-related situations as key triggers of anxiety and behavioural escalation for autistic children (Goodwin et al., 2022). When teachers lack the knowledge or confidence to interpret these responses, behaviours that serve regulatory or communicative functions may be misread as deliberate non-compliance, leading to reactive rather than supportive responses. Research further demonstrates that teachers' attitudes toward inclusion are strongly linked to their sense of self-efficacy, and that both are shaped by training and direct experience (Yada et al., 2022). Examining behavioural difficulties through

teachers' perspectives therefore illuminates not only student characteristics but also the professional and contextual factors that mediate inclusion.

Understanding these behavioural challenges also has direct implications for professional preparation and intervention design. Evidence syntheses of teacher-directed behaviour management training indicate that structured, practice-oriented programmes accompanied by ongoing coaching can meaningfully strengthen educators' capacity to respond to challenging behaviour in general education settings (Samudre et al., 2022). Comparable reviews of evidence-based practices for autistic children and youth highlight the value of proactive, antecedent-focused strategies, including visual supports and structured routines, for reducing behavioural intensity and promoting participation. Nevertheless, the translation of such evidence into everyday classroom practice remains uneven, particularly where teacher preparation programmes provide limited exposure to autism-specific behavioural knowledge. This gap is especially pronounced in contexts where inclusive education is expanding rapidly yet specialist expertise is scarce, as documented in regional studies of educators' attitudes toward autism inclusion (Alkinj et al., 2022). Situating the present investigation within teachers' lived classroom experiences therefore offers a grounded basis for identifying priority behavioural concerns and informing targeted, contextually relevant professional development.

Significance of the Study

The study offers significant theoretical value by extending the academic literature on behavioural difficulties associated with ASD through the integration of contemporary international evidence with classroom-based realities. It broadens existing conceptualisations of behavioural problems beyond conventional diagnostic classifications, thereby providing a more comprehensive understanding of the challenges that impede effective educational inclusion. Furthermore, the findings establish a basis for future research examining how teachers' perceptions of behavioural difficulties influence the effectiveness of behavioural intervention strategies, thereby strengthening the evidence base within special education.

From a practical standpoint, the study provides valuable evidence for educational policymakers, practitioners, and programme developers by drawing upon teachers' direct classroom experiences. The findings can support the design of targeted professional development programmes that address priority behavioural concerns, including impulsivity and stereotypical behaviours, while also informing the development of more contextually relevant behavioural assessment instruments. In addition, the study offers practical guidance for implementing evidence-based instructional and behavioural management strategies that may reduce the severity of behavioural difficulties, promote more successful educational inclusion for students with ASD, and alleviate teachers' occupational stress and burnout.

Objectives of the Study

1. To examine the severity and prevalence of behavioural difficulties, including stereotypical behaviours, aggression, and emotional regulation problems, among students with ASD and their implications for the educational process.
2. To identify and categorise the behavioural difficulties most frequently observed in classroom settings among students with ASD based on teachers' and practitioners' experiences.
3. To explore the behavioural difficulties most commonly displayed by children with ASD at home and in social settings, and determine whether these behaviours correspond with those observed at school.
4. To examine the factors and circumstances perceived to aggravate or reduce behavioural difficulties among children with ASD.
5. To evaluate the level of collaboration and communication between families and teachers in managing behavioural difficulties among children with ASD, and to identify strategies for strengthening this partnership.

Literature Review

Theoretical Framework

ASD is a complex neurodevelopmental condition characterised not only by difficulties in social communication but also by behavioural characteristics that substantially influence an individual's adaptation and overall quality of life. Contemporary research recognises behavioural difficulties as a fundamental component of ASD rather than a secondary consequence, attributing them to the interaction between sensory processing differences and impairments in executive functioning. Current evidence further suggests that behaviours such as stereotypical actions and aggression often serve communicative purposes by expressing frustration or enabling individuals to avoid social and environmental demands that exceed their processing capacity (Christoforou et al., 2023). Recent educational perspectives have shifted from a deficit-oriented medical approach towards a contextual social and educational framework that interprets behaviours within their environmental setting, thereby highlighting teachers' pivotal role in understanding and responding appropriately to behavioural manifestations in the classroom.

Repetitive and Restrictive Behaviours (RRBs): RRBs represent one of the most persistent classroom challenges encountered by teachers because they interrupt instructional activities and reduce students' responsiveness to unfamiliar learning experiences. Evidence suggests that a strong preference for routine and resistance to change arise from students' attempts to maintain predictability and reduce anxiety, which is often heightened within dynamic school environments (Adams et al., 2019; Emerson & Costley, 2023; Simpson et al., 2021). From an educational perspective, RRBs, although frequently

perceived as non-functional, can serve as self-regulatory mechanisms that help students with ASD manage sensory overload (Gentil-Gutiérrez et al., 2021). Consequently, teachers who recognise the functional purpose of these behaviours are better positioned to implement supportive strategies, such as visual schedules and structured routines, that reduce behavioural intensity and facilitate greater academic participation.

Impulsivity and Emotional Regulation: Difficulties related to impulsivity and emotional regulation constitute major obstacles to the successful inclusion of students with ASD in mainstream education. These behavioural challenges are often associated with impairments in theory of mind, limiting students' ability to anticipate others' reactions and increasing the likelihood of impulsive responses or sudden emotional outbursts (Chiu et al., 2023; Rosello et al., 2020). Within Jordanian classrooms, teachers frequently encounter these difficulties during collaborative activities, including group work and turn-taking tasks, where social interaction demands are greater. Problems with emotional regulation affect not only the individual student but also the overall classroom environment, highlighting the importance of equipping teachers with effective behavioural crisis management skills. Prompt and appropriate intervention is essential, as unmanaged impulsive behaviours may escalate into more severe behavioural incidents (Zeidan et al., 2022).

Theoretical Perspectives Underpinning the Study

Social Learning Theory

abilities, which typically enable students to acquire adaptive patterns of behaviour through social interaction (Soares et al., 2021).

Within this framework, students who have not developed effective cognitive self-regulation strategies may depend on these behaviours as coping mechanisms when confronted with demanding classroom stimuli. Consequently, teachers frequently observe elevated levels of such behaviours because students experience difficulty imitating appropriate behavioural models demonstrated within the learning environment (Yada et al., 2022). The theory further emphasises that teachers play a pivotal role in influencing behavioural development, as their responses function as environmental factors that shape behaviour through the reciprocal interaction between personal, behavioural, and contextual influences, consistent with the principle of reciprocal determinism (Conner et al., 2021).

Ecological Theory

From this perspective, behaviour is viewed as the outcome of continuous interactions between the student and multiple interconnected ecological systems. Rather than attributing behavioural difficulties solely to internal characteristics, the ecological framework interprets them as responses to a mismatch between the student's capabilities and the demands imposed by the

immediate environment, particularly the classroom microsystem (Tong & An, 2024). Accordingly, the behavioural difficulties observed by teachers in Irbid Governorate are likely to reflect the extent to which classroom environments accommodate students' individual needs. Factors such as overcrowded classrooms and inadequate sensory support may intensify behavioural challenges, making teachers' observations a valuable indicator of how effectively school environments respond to learner diversity (Tong & An, 2024). Furthermore, the mesosystem, particularly the quality of collaboration between families and schools, plays an important role in promoting behavioural stability and may explain variations in behavioural outcomes across educational settings with differing levels of institutional support (Tong & An, 2024).

Self-Efficacy Theory

Self-efficacy theory proposes that teachers' perceptions of their own professional capabilities shape how they interpret and respond to behavioural difficulties encountered in the classroom. Evidence indicates that teachers with stronger self-efficacy are more likely to regard behaviours such as stereotypical actions and impulsivity as manageable instructional challenges rather than insurmountable obstacles, resulting in more balanced and constructive interpretations of these behaviours (Hettinger et al., 2021; Yada et al., 2022).

Within the context of the present study, this theoretical perspective has important implications for interpreting the findings. Teachers with greater confidence in their classroom management and instructional abilities may perceive behavioural difficulties as less severe than those with lower levels of professional self-efficacy (Yada et al., 2022). Consequently, the mean scores reported in this study may reflect not only the severity of behavioural difficulties exhibited by students with ASD but also the professional competence and confidence of teachers working within Jordanian educational settings (Yada et al., 2022). Collectively, the theories discussed provide a comprehensive framework for understanding behavioural difficulties associated with ASD in educational environments. While ecological and social cognitive perspectives explain the development and manifestation of these behaviours, self-

Viewed holistically, the findings of the present study reflect the combined influence of characteristics associated with ASD, the educational environments within schools in Irbid Governorate, and teachers' professional competence. Accordingly, effective educational practice requires an integrated approach that simultaneously considers student characteristics, contextual classroom factors, and teachers' professional capabilities when addressing the behavioural needs of students with ASD.

Previous Studies

Yada et al. (2022) conducted a meta-analysis examining the relationship

between teachers' self-efficacy and their attitudes toward inclusive education. Synthesising evidence across numerous international studies, the authors found a consistent positive association, indicating that teachers with higher self-efficacy tend to hold more favourable attitudes toward including students with disabilities and to perceive behavioural challenges as more manageable. The findings underscore the role of professional confidence in shaping how behavioural difficulties are interpreted in the classroom. In a related line of inquiry, Brunsting et al. (2022) investigated burnout among special educators serving students with emotional and behavioural disorders through a longitudinal study of 230 teachers across multiple districts. The results revealed that emotional exhaustion fluctuated across the school year and was closely linked to working conditions, suggesting that sustained exposure to challenging behaviour can intensify occupational stress and, in turn, influence teachers' evaluations of student behaviour.

Gómez-Marí et al. (2022) carried out a systematic review of teachers' attitudes toward autism spectrum disorder, analysing sixteen studies drawn from major databases. The review reported inconclusive and variable attitudes, with knowledge, experience, training, and gender emerging as key moderating factors, and concluded that targeted professional preparation is necessary to foster more consistent and positive dispositions toward autistic learners. Complementing this educational focus, Mallory and Keehn (2021) conducted an integrative review of sensory processing and attentional differences associated with autism in academic settings. The authors demonstrated that complex classroom sensory environments can overwhelm autistic students, disrupting attention and contributing to disengagement and repetitive behaviour, and they highlighted the importance of adapting learning environments to reduce overstimulation and support behavioural regulation.

Christoforou et al. (2023) examined executive function profiles of preschool children with autism spectrum disorder and attention-deficit/hyperactivity disorder through a systematic review of thirty-one empirical studies. The findings indicated that autistic children display consistent difficulties with shifting and, in most cases, inhibition, deficits that reduce their capacity to regulate impulsive responses and are frequently rated by teachers as disruptive to academic performance. Focusing on the most severe behavioural manifestations, Steinfeldt-Kristensen et al. (2020) conducted a meta-analytic study of the prevalence of self-injurious behaviour in autism, synthesising data from thirty-seven papers involving more than fourteen thousand participants. The analysis established that self-injurious behaviour is common among autistic individuals and is associated with communication impairment and lower adaptive functioning, reinforcing the need for functional behavioural assessment and proactive intervention within school settings.

Ghaemmaghami et al. (2021) reviewed functional communication training as an intervention for challenging behaviour rooted in applied behaviour

analysis. The authors traced the evolution of the approach from efficacy to effectiveness, demonstrating that teaching students appropriate communicative alternatives can substantially reduce behaviours that serve escape or attention functions, and emphasising the value of embedding such strategies within everyday classroom routines. From a professional-development perspective, Samudre et al. (2022) conducted a systematic review of behaviour management training for general educators, analysing seventy-four studies. The review found that structured initial training combined with ongoing coaching was most effective in strengthening teachers' implementation of behaviour-management strategies, underscoring that sustained, practice-oriented support is essential for translating behavioural evidence into consistent classroom practice.

A review of the existing literature demonstrates considerable diversity in research examining behavioural difficulties among students with ASD. Recent studies, including those by Yada et al. (2022) and Brunsting et al. (2022), have primarily focused on teachers' psychological characteristics, self-efficacy, and occupational well-being, whereas Christoforou et al. (2023) concentrated on the neurodevelopmental mechanisms underlying behavioural manifestations. Building upon these contributions, the present study addresses an important contextual gap by examining behavioural difficulties within the educational environment of Irbid Governorate, Jordan. Unlike previous research, it considers the influence of the local classroom context on teachers' perceptions while integrating established theoretical perspectives with practical classroom realities. Consequently, the study provides context-specific evidence that can inform decision-makers within the Ministry of Education in designing targeted professional development programmes aimed at strengthening teachers' competencies in managing behavioural difficulties among students with ASD and advancing more effective and sustainable inclusive education practices.

Methodology

Research Design

To address the study objectives, a mixed-methods design was employed, integrating a descriptive survey with a qualitative approach. The quantitative component utilised a descriptive survey to examine behavioural difficulties among students with ASD from teachers' perspectives in Irbid Governorate and to determine the prevalence and severity of these behaviours through statistical analysis. Complementing this, the qualitative component involved semi-structured interviews with a purposively selected sample of parents of children with ASD. These interviews provided a more detailed understanding of the behavioural difficulties most frequently exhibited by children, explored factors contributing to their occurrence, and examined the extent of convergence or divergence between teachers' and parents' perspectives.

Population and Sample of the Study

The target population comprised all teachers working with students with ASD in public and private schools, as well as special education centres affiliated with the Directorate of Education in Irbid Governorate during the 2025/2026 academic year, totalling 800 teachers. For the quantitative phase, a simple random sampling technique was employed to select 230 teachers. The qualitative phase involved a purposively selected sample of 12 parents of children with ASD who participated in semi-structured interviews. These interviews provided in-depth insights into the behavioural difficulties experienced by their children and facilitated a comparison between parents' and teachers' perceptions. Table 1 summarises the demographic characteristics of the quantitative sample.

Table 1
Characteristics of the Study Sample

Variable	Category	Frequency	Percentage
Gender	Male	85	37.0
	Female	145	63.0
Academic Qualification	Bachelor's Degree	172	74.8
	Graduate Studies	58	25.2
Years of Experience	Less than 5 Years	64	27.8
	5–10 Years	102	44.4
	More than 10 Years	64	27.8
Work Setting	Public School	98	42.6
	Private School	72	31.3
	Special Education Centre	60	26.1
Training Courses	None	42	18.3

Table 1
Characteristics of the Study Sample (cont...)

	1–3 Courses	128	55.6
	More than 3 Courses	60	26.1
Total		230	100

Research Instrument

To fulfil the study objectives and examine behavioural difficulties among students with ASD in Irbid Governorate, two data collection instruments were employed. The quantitative component utilised a structured questionnaire, whereas the qualitative component relied on semi-structured interviews to obtain more comprehensive insights into the phenomenon under investigation.

Questionnaire

The questionnaire served as the principal instrument for collecting quantitative data from teachers. Its development was informed by the relevant theoretical literature and previous empirical studies, particularly those of Yada et al. (2022) and Gómez-Marí et al. (2022). The final version of the instrument comprised two main sections:

Section One: Demographic Data

This section gathered respondents' demographic and professional information, including gender, academic qualifications, years of teaching experience, workplace, and participation in professional training programmes.

Section Two: Domains of Behavioural Problems

The second section of the final instrument comprised 40 items distributed evenly across four domains, with each domain containing 10 items. The first domain assessed stereotyped and repetitive behaviours, the second focused on impulsivity and attention deficits, the third addressed withdrawal behaviours and anxiety, while the fourth examined challenging behaviours, including self-injurious actions and aggression towards others (Laverty et al., 2020).

Semi-Structured Interviews

Semi-structured interviews were conducted with a purposively selected sample of 12 parents of children with ASD to collect in-depth qualitative data on behavioural difficulties commonly observed in home and social contexts. The interviews also explored perceived factors influencing the occurrence of these behaviours and examined the degree of convergence or divergence between parents' and teachers' perspectives.

Validity of the Instrument

To ensure that the questionnaire accurately measured the intended constructs, validity was established through the following procedures:

Face Validity

To assess face validity, the initial draft of the questionnaire was reviewed by a panel of seven experts drawn from Yarmouk University and the University of Jordan, specialising in special education, psychology, measurement, and evaluation. The experts were requested to evaluate the relevance of each item to its corresponding domain, the clarity of wording, and the extent to which the items appropriately represented behavioural problems. Based on their feedback, several linguistic modifications were made and a number of items were merged, resulting in a final instrument consisting of 40 items.

Validation of Semi-Structured Interviews

The interview questions were likewise submitted to the same panel of experts for evaluation of their appropriateness, clarity, and suitability for achieving the objectives of the qualitative component of the study. In response to their feedback, minor linguistic revisions were made to enhance clarity and ensure alignment with the study's objectives.

Reliability of the Instrument

The reliability of the questionnaire was established by examining its internal consistency and stability in producing consistent results upon repeated measurement. This was assessed using internal consistency reliability, where Cronbach’s alpha coefficients were calculated for each of the four domains as well as for the overall instrument based on the pilot sample. The alpha values for the domains ranged between 0.84 and 0.91, while the coefficient for the entire questionnaire was 0.93. These results indicate a high level of reliability and exceed the commonly accepted threshold of 0.70 for scientific research instruments.

Statistical Criteria for the Study Measures

A five-point Likert scale was used to evaluate respondents’ answers, consisting of the response options “Always,” “Often,” “Sometimes,” “Rarely,” and “Never.” Numerical values were assigned to these responses, ranging from 5 to 1 for positively worded items, while the scoring was reversed for negatively worded items. The interpretation of the mean scores was categorised as follows:

- A mean score below 2.33 indicates a low level of assessment.
- A mean score between 2.34 and 3.67 indicates a moderate level of assessment.
- A mean score of 3.68 and above indicates a high level of assessment.

Statistical Methods Used in the Study

- Calculating means, standard deviations, ranks, and levels of assessment, in addition to frequencies and percentages.
- Determining the reliability of the measurement instrument by examining its internal consistency using Cronbach’s alpha coefficient.

Presentation of the Study Results

Results of the First Research Question: “What is the level of severity and frequency of these behavioural problems (such as stereotyped behaviours, impulsivity, and emotional deficits) among students with ASD from teachers’ perspectives?” To answer this question, means and standard deviations were calculated for the domains of the study instrument, as presented in Table 2.

Table 2
Means and Standard Deviations of the Domains of the Behavioural Problems Scale among Students with ASD

Rank	Domain	Mean	Standard Deviation	Level
1	Stereotyped and Repetitive Behaviours	4.12	0.422	High
2	Impulsivity and Attention Deficits	3.85	0.485	High
3	Emotional and Affective Deficits	3.40	0.512	Moderate
4	Challenging Behaviours and Self-Injury	2.91	0.633	Moderate
	Overall Mean of the Scale	3.57	0.395	Moderate

As shown in Table 2, the overall level of teachers’ assessments of behavioural problems among students with ASD in Irbid Governorate was moderate, with a mean score of 3.57. With regard to the specific domains of behavioural problems, “Stereotyped and Repetitive Behaviours” ranked first with a mean of 4.12, indicating a high level. This was followed by “Impulsivity and Attention Deficits” in second place with a mean of 3.85. The third-ranked domain was “Emotional and Affective Deficits,” with a mean of 3.40, reflecting a moderate level. “Challenging Behaviours and Self-Injury” ranked last with a mean of 2.91. Results of the second research question, “What are the most common behavioural problems associated with ASD in the classroom environment from teachers’ perspectives?”, were addressed by calculating means and standard deviations for participants’ responses on the overall behavioural scale, as well as for each item within the respective domains. The corresponding tables are presented below.

Domain One: Stereotyped and Repetitive Behaviours

As shown in Table 3, the overall mean score for the domain of “stereotyped and repetitive behaviours” was 4.12. At the item level, the highest mean was recorded for the statement “repeats physical movements such as hand-flapping or rocking,” with a mean score of 4.45, indicating a high level. In contrast, the lowest mean score was observed for the statement “becomes upset when his/her repetitive activity is interrupted,” which recorded a mean of 3.82.

Table 3
Means and Standard Deviations for the Domain of Stereotyped and Repetitive Behaviours

No.	Item	Mean	Standard Deviation	Rank	Level
1	Repeats physical movements (such as hand-flapping or rocking).	4.45	0.612	1	High
2	Resists changes in the daily school schedule.	4.38	0.589	2	High
3	Repeats words (echolalia) frequently.	4.30	0.690	3	High
4	Repeats certain sounds without clear meaning.	4.15	0.720	4	High
5	Engages in activities or objects instead of using them functionally.	4.10	0.745	5	High
6	Repeats questions despite receiving an answer.	4.08	0.655	6	High
7	Spins around or runs aimlessly in the classroom.	4.02	0.763	7	High
8	Insists on performing tasks in a specific way.	3.95	0.812	8	High
9	Shows unusual attachment to specific objects.	3.88	0.884	9	High
10	Becomes upset when the repetitive pattern is interrupted.	3.82	0.901	10	High
Overall Mean of the Domain		4.12	0.422	—	High

Domain Two: Emotional Deficits and Affective Problems

As shown in Table 4, the overall mean score for the domain of “emotional deficits and affective problems” was 3.40. At the item level, the highest mean score was recorded for the statement “exhibits exaggerated reactions when

rejected,” with a mean of 3.90. In contrast, the lowest mean score was observed for the statement “is affected by others’ emotional states,” with a mean score of 3.05.

Table 4

Means and Standard Deviations for the Domain of Emotional Deficits and Affective Problems

No.	Item	Mean	Standard Deviation	Rank	Level
11	Cries or laughs in inappropriate situations.	3.65	0.822	2	Moderate
12	Exhibits exaggerated reactions when rejected.	3.90	0.741	1	High
13	Difficulty expressing basic needs.	3.55	0.890	4	Moderate
14	Emotional withdrawal during learning.	3.10	0.954	9	Moderate
15	Anxiety when transitioning between activities.	3.58	0.811	3	Moderate
16	Difficulty understanding peers’ emotions.	3.42	0.765	5	Moderate
17	Cold or indifferent emotional behaviours.	3.35	0.833	7	Moderate
18	Affected by others’ emotional states.	3.05	0.912	10	Moderate
19	Hesitates to seek help when distressed.	3.40	0.789	6	Moderate
20	Sensitivity when corrected for mistakes.	3.22	0.877	8	Moderate
Overall Mean of the Domain		3.40	0.512	—	Moderate

Domain Three: Impulsivity and Attention Deficits

As presented in Table 5, the overall mean score for the domain of “impulsivity and attention deficits” was 3.85, indicating a high level. At the item level, the highest mean score was recorded for the statement “impulsively reaches for objects before instructions are given,” with a mean of 4.25, reflecting a high level. In contrast, the lowest mean score was obtained for the statement “engages in physical risk-taking without awareness,” with a mean of 3.45, indicating a moderate level.

Table 5

Means and Standard Deviations for the Domain of Impulsivity and Attention Deficits

No.	Item	Mean	Standard Deviation	Rank	Level
21	Impulsively reaches for objects before instructions are given.	4.25	0.601	1	High
22	Moves suddenly from the seat.	4.15	0.688	2	High
23	Is distracted by simple stimuli.	4.05	0.694	3	High

Table 5

Means and Standard Deviations for the Domain of Impulsivity and Attention Deficits

24	Difficulty waiting for their turn in activities.	3.95	0.755	4	High
25	Excessive motor activity.	3.88	0.712	5	High
26	Interrupts others’ conversations.	3.80	0.821	6	High

27	Difficulty completing academic tasks.	3.75	0.845	7	High
28	Finds it difficult to follow verbal instructions.	3.68	0.782	8	High
29	Loses school tools/materials.	3.55	0.899	9	Moderate
30	Takes risks without awareness of consequences.	3.45	0.933	10	Moderate
Overall Mean of the Domain		3.85	0.485		High

Domain Four: Challenging Behaviours and Self-Injury

As shown in Table 6, the overall mean score for the domain of “challenging behaviours and self-injury” was 2.91, indicating a moderate level. At the item level, the highest mean score was observed for the statement “sudden loud and sharp outbursts,” with a mean of 3.45, reflecting a moderate level. In contrast, the lowest mean score was recorded for the statement “spitting or using the hand inappropriately,” with a mean of 2.30, indicating a low level.

Table 6

Means and Standard Deviations for the Domain of Challenging Behaviours and Self-Injury					
No.	Item	Mean	Standard Deviation	Rank	Level
31	Sudden loud outbursts or screaming.	3.45	0.844	1	Moderate
32	Verbal refusal of instructions (oppositional behaviour).	3.32	0.812	2	Moderate
33	Aggressive behaviour (hitting or biting others).	3.25	0.922	3	Moderate
34	Damaging or breaking school tools.	3.10	0.985	4	Moderate
35	Resistance to guidance or directions.	3.02	0.899	5	Moderate
36	Pulling others’ hair or clothing.	2.85	1.045	6	Moderate
37	Deliberately destroying classroom materials.	2.70	0.998	7	Moderate
38	Head-banging or hand-biting.	2.55	1.102	8	Moderate
39	Self-injury to escape tasks.	2.50	1.150	9	Moderate
40	Spitting or using inappropriate language.	2.30	1.125	10	Low
Overall Mean of the Domain		2.91	0.633	—	Moderate

Discussion of Results

This section discusses the study findings in line with the research questions. Each question is addressed in detail below.

The results indicated that the overall mean score of teachers’ assessments regarding the severity and frequency of behavioural problems among students with ASD in Irbid Governorate was moderate ($M = 3.57$). In terms of domain ranking, “stereotyped and repetitive behaviours” ranked first, followed by “impulsivity and attention deficits,” with both domains falling within the high range. In contrast, “emotional and affective deficits” and “challenging behaviours” were both rated at a moderate level. This pattern may be attributed

to the core characteristics of ASD, as these behavioural domains align closely with the primary diagnostic criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition, Text Revision) published by the American Psychiatric Association (American Psychological Association, 2022). From an ecological systems perspective, these findings can be interpreted as the outcome of continuous interaction between students' biological characteristics and the classroom environment (microsystem). In this regard, ecological accounts of development suggest that the presence of structured routines and relatively stable school environments in Irbid Governorate may contribute to moderating the intensity of challenging behaviours, resulting in their classification at a moderate level (Tong & An, 2024).

In contrast, stereotyped behaviours were the most prominent, which may be explained by their internal and self-regulatory nature, reflecting students' need to manage sensory input and maintain environmental predictability. Similarly, the prominence of impulsivity and attention deficits can be interpreted through Social Learning Theory, which emphasises the role of observational learning and behavioural modelling. Consistent with social-cognitive accounts of behavioural development, students with ASD often experience difficulties in observing and imitating appropriate peer behaviours, which in turn limits the development of self-regulation and contributes to elevated impulsivity in classroom settings (Soares et al., 2021). These findings are consistent with Zeidan et al. (2022), who reported that stereotyped behaviours remain among the most frequently observed and identifiable behavioural characteristics of individuals with ASD. However, the present results contrast with evidence documenting significantly higher levels of challenging behaviours in some special-education settings (Brunsting et al., 2022).

Discussion of the Results of the Second Research Question

The findings highlight several behavioural patterns that reflect the daily challenges faced by teachers in managing students with ASD. Within the domain of stereotyped and repetitive behaviours, which ranked highest, the item "repetition of physical movements such as hand flapping or rocking" recorded the highest mean score. This can be interpreted from both physiological and educational perspectives, as such behaviours often function as self-regulatory mechanisms that help students cope with heightened sensory stimulation in the classroom environment. Research on sensory processing similarly indicates that stereotyped behaviours are more frequent in settings characterised by limited sensory organisation or environmental structure, where students may rely on such actions as coping strategies to achieve internal regulation and stability (Mallory & Keehn, 2021).

In the domain of emotional deficits and affective problems, the item "exaggerated reactions when rejected" obtained the highest mean score, indicating it as the most frequently observed behaviour within this dimension.

This finding may be explained through the lens of Social Learning Theory, which emphasises difficulties in social cognition and the interpretation of interpersonal cues among students with ASD. Specifically, deficits in understanding reciprocal social interactions may lead to heightened emotional responses when students perceive rejection or restriction from teachers (Hendrix et al., 2022). Such reactions are often linked to difficulties in processing instructional boundaries and managing frustration when immediate desires are not met, as noted in research on emotion regulation and dysregulation in autism (Conner et al., 2021). Regarding impulsivity and attention deficits, the item “impulsively reaching for objects before instructions are given” achieved the highest mean score. This is consistent with evidence that executive functioning impairments reduce students’ ability to inhibit immediate responses, resulting in stimulus-driven behaviour where actions are initiated in response to salient visual or environmental cues without waiting for verbal instruction completion (Christoforou et al., 2023).

In contrast, the domain of challenging behaviours and self-injury was rated at a moderate level overall, making it the least prevalent domain. Within this category, “loud outbursts or screaming” was identified as the most frequent behaviour, whereas “spitting” was the least frequent. This suggests that, although such behaviours are present, their occurrence may be relatively contained within the educational context of Irbid Governorate, potentially reflecting some effectiveness in classroom management strategies and environmental structuring (Sivathasan et al., 2024). (Lord et al., 2022) argue that behaviours such as screaming may function as forms of communicative expression used by students with ASD to signal distress or discomfort. Accordingly, these findings underscore the importance of strengthening functional communication skills to reduce maladaptive expressions and promote more adaptive behavioural alternatives within the classroom setting (Muharib et al., 2022).

Results and Analysis of Qualitative Interviews

First: Description of Common Behavioural Problems and their Consistency Between Home and School Environments

In-depth interviews with parents indicated that children with ASD demonstrate a stable and recurring pattern of behaviours, particularly stereotyped and impulsive actions. These behaviours were consistently reported across both home and school contexts, suggesting that their occurrence is not context-specific but rather reflects a persistent behavioural profile across environments. This consistency implies that the issue is more closely associated with the child’s internal behavioural regulation processes than with situational or environmental variability. One participant highlighted this stability, noting: “I notice that my son’s hand-flapping increases at home when he feels excited, and this is the same observation the teacher notes in the

daily communication log, which means the behaviour is linked to the child's emotional state regardless of the setting." This statement indicates that the behaviour appears to be closely associated with emotional arousal, remaining consistent across different contexts rather than being triggered solely by environmental conditions.

Impulsivity was also identified as a prominent concern. A parent explained: "Impulsivity and the inability to wait one's turn are the most exhausting behaviours; he tries to get what he wants at home without patience, and the teacher complains of the same behaviour during group activities." The recurrence of this behaviour across settings suggests limitations in self-regulation and inhibitory control. Similarly, echolalia was reported as a persistent and context-independent behaviour. One participant stated: "The behaviour of echolalia appears stereotypically across different contexts, whether during family interactions or when the teacher attempts to give him academic instructions." This indicates that echolalic speech patterns are likely linked to repetitive linguistic processing mechanisms rather than situational responses (Blackburn et al., 2023; Cohn et al., 2022).

However, while the type of behaviours remained consistent, variations were observed in their intensity. One parent noted: "Despite the similarity in the type of behaviour, the intensity of the shouting increases at home; I believe the child is releasing the psychological pressure he has placed on himself to adhere to classroom rules throughout the day." This suggests that although the behavioural patterns themselves are stable across environments, contextual factors may influence the degree or intensity of their expression.

Second: Factors and Situations that Influence the Onset or Alleviation of Behavioural Problems

The findings indicate that behavioural manifestations in children with ASD cannot be interpreted independently of their environmental context, as they emerge from continuous interaction between the child's individual characteristics and surrounding sensory and regulatory stimuli. Participants consistently emphasised that environmental disorganisation and heightened sensory load contribute significantly to the escalation of maladaptive behaviours. In this regard, one parent explained: "Loud noise and crowding in public places act as a conditional trigger for tantrums, as the child loses their ability to self-regulate as a result of auditory hypersensitivity." This reflects heightened sensory sensitivity, which appears to directly disrupt emotional and behavioural regulation.

Conversely, the data also highlighted the protective role of structured and predictable environments. One participant noted: "We observed that adhering to a clear visual timetable significantly reduces disruptive episodes; environmental clarity gives the child a sense of security and reduces their resistance." This suggests that visual structure and environmental predictability may function as stabilising factors that reduce behavioural distress and anxiety.

In addition, abrupt changes in routine were frequently identified as significant behavioural triggers. One parent reported: “Changes to the daily routine, such as a change of teacher or a different bus route, are among the biggest triggers for minor aggressive behaviours towards oneself or others.” This underscores the sensitivity of children with ASD to routine stability and continuity in daily experiences.

Finally, participants highlighted the role of the home environment in behavioural regulation and recovery. One parent stated: “Providing a sensory sanctuary at home with calming tools helps the child regain their emotional balance after a demanding school day full of stimuli.” This indicates that environmental modification, particularly at home, is not merely supportive but forms an essential component of behavioural management and emotional regulation strategies.

Third: Assessment of the Level of Partnership Between the Family and the School and Proposals for Its Development

The findings suggest that the relationship between families and schools is largely confined to a procedural level, characterised mainly by information exchange rather than a substantive educational partnership based on shared planning and coordinated intervention (Đorđević et al., 2022). This limited integration is reflected in the fragmented nature of behavioural management strategies applied across home and school contexts. One participant described the current communication pattern, stating: “Current communication is purely informative; we need joint guidance sessions to learn how to apply behaviour modification techniques at home in the same way they are applied at school.” This highlights a clear lack of alignment and standardisation in behavioural intervention practices across settings.

The need for more structured and systematic communication mechanisms was also emphasised. A parent suggested: “We propose the creation of a regular digital communication platform that allows us and the teachers to discuss the behavioural function of every new behaviour, to ensure the child is not confused by two different approaches.” This reflects the absence of a continuous and coordinated behavioural monitoring system linking home and school environments. From the perspective of professional capacity, one participant noted: “The teacher’s competence and specialist training are the driving force behind cooperation; a teacher with scientific skills is best placed to guide and support us as parents.” This indicates that the effectiveness of collaboration is perceived to depend significantly on teachers’ professional training and expertise. The importance of joint planning was further highlighted, with another participant stating: “We aspire to have an Individual Education Plan (IEP) that includes a clear behavioural component, drafted jointly by parents and teachers, so that responsibilities are defined, and objectives are aligned.” This underscores the perceived absence of a structured, unified framework for coordinated behavioural intervention.

Overall, these qualitative findings align with the quantitative results, which identified stereotypical behaviours as the most prevalent. However, they also extend the interpretation by indicating that the central issue is not merely the existence of behavioural difficulties, but rather the inconsistency in how these behaviours are managed across different environments. The findings further support the need for targeted training programmes for both teachers and parents, as insufficient training not only limits effective behavioural management but may also intensify perceptions of behavioural difficulty, thereby transforming manageable behaviours into persistent challenges.

Conclusion

The findings suggest that behavioural difficulties among students with ASD in classroom settings are not purely situational, but are closely linked to core features of the disorder, particularly sensory processing and communication impairments. The high prevalence of stereotyped and impulsive behaviours highlights the need for learning environments adapted to sensory needs and reduced environmental overstimulation. The results also show a gap between theoretical preparation and practical application in special education. Lack of formal qualifications appears to influence teachers' perceptions of behavioural difficulties, while structured training is associated with higher self-efficacy. Consistent with social learning theory, trained teachers tend to interpret behaviours more objectively and view them as manageable challenges rather than fixed conditions. Additionally, field-based training in Irbid is linked to reduced overt aggressive and challenging behaviours, but a relative increase in stereotyped and vocal behaviours, suggesting a shift in behavioural expression rather than an overall reduction. This pattern should be interpreted cautiously and examined further through longitudinal research to better understand behavioural stability and change over time.

Recommendations

The study offers the following recommendations:

1. It is recommended that teachers working with students with ASD be required to undergo intensive training in behaviour modification approaches such as Applied Behaviour Analysis (ABA), rather than relying solely on academic qualifications such as bachelor's or master's degrees. This recommendation is based on evidence indicating that specialised training enhances teachers' self-efficacy and reduces their perceived severity of behavioural difficulties (Yu et al., 2020).
2. It is recommended that classroom environments in educational institutions within Irbid Governorate be redesigned to incorporate sensory regulation facilities. Such adaptations would support students in managing sensory overload and may reduce reliance on stereotypical behaviours, such as hand-flapping, as coping mechanisms.

3. It is recommended that proactive intervention strategies, including the use of visual schedules, be implemented to address high levels of impulsivity and attention deficits (Smith et al., 2022). These strategies can help students anticipate instructional expectations and improve behavioural regulation prior to engaging in academic tasks (Schmidt et al., 2021).
4. It is recommended that further experimental studies be conducted in Jordan to examine the effectiveness of training programmes in reducing stereotypical and impulsive behaviours. Additionally, qualitative research is needed to explore the underlying reasons for differences in perceptions between trained and untrained teachers regarding behavioural difficulties among students with ASD.

References

- Adams, D., MacDonald, L., & Keen, D. (2019). Teacher responses to anxiety-related behaviours in students on the autism spectrum. *Research in developmental disabilities*, 86, 11–19. <https://doi.org/10.1016/j.ridd.2018.12.009>
- Alkinj, I., Pereira, A., & SANTOS, P. (2022). Educators' attitudes towards the inclusion of students with autism spectrum disorder (ASD) in Jordanian public schools. *Revista Brasileira de Educação Especial*, 28. <https://doi.org/10.1590/1980-54702022v28e0157>
- American Psychological Association, A. (2022). Diagnostic and statistical manual of mental disorders. <https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425787>
- Blackburn, C., Tueres, M., Sandanayake, N., Roberts, J., & Sutherland, R. (2023). A systematic review of interventions for echolalia in autistic children. *International journal of language & communication disorders*, 58(6), 1977–1993. <https://doi.org/10.1111/1460-6984.12931>
- Brunsting, N. C., Bettini, E., Rock, M. L., Royer, D. J., Common, E. A., Lane, K. L., Xie, F., Chen, A., & Zeng, F. (2022). Burnout of special educators serving students with emotional-behavioral disorders: A longitudinal study. *Remedial and Special Education*, 43(3), 160–171. <https://doi.org/10.1177/07419325211030562>
- Chiu, H.-M., Chen, C.-T., Tsai, C.-H., Li, H.-J., Wu, C.-C., Huang, C.-Y., & Chen, K.-L. (2023). Theory of mind predicts social interaction in children with autism spectrum disorder: A two-year follow-up study. *Journal of Autism and Developmental Disorders*, 53(9), 3659–3669. <https://doi.org/10.1007/s10803-022-05662-4>
- Christoforou, M., Jones, E. J., White, P., & Charman, T. (2023). Executive function profiles of preschool children with autism spectrum disorder and attention-deficit/hyperactivity disorder: A systematic review. *JCPP advances*, 3(1), e12123. <https://doi.org/10.1002/jcv2.12123>
- Cohn, E. G., McVilly, K. R., Harrison, M. J., & Stiegler, L. N. (2022). Repeating purposefully: Empowering educators with functional communication models of echolalia in Autism. *Autism & Developmental Language Impairments*, 7, 23969415221091928. <https://doi.org/10.1177/23969415221091928>
- Conner, C. M., Golt, J., Shaffer, R., Righi, G., Siegel, M., & Mazefsky, C. A. (2021). Emotion dysregulation is substantially elevated in autism compared to the general population: Impact on psychiatric services. *Autism Research*, 14(1), 169–181. <https://doi.org/10.1002/aur.2450>
- Đorđević, M., Glumbić, N., Memisevic, H., Brojčin, B., & Krstov, A. (2022). Parent-teacher interactions, family stress, well-being, and parental depression as contributing factors to parental involvement mechanisms in education of children with autism. *International Journal of Developmental Disabilities*, 68(6), 838–849. <https://doi.org/10.1080/20473869.2021.1896962>
- Emerson, A., & Costley, D. (2023). A scoping review of school-based strategies for addressing anxiety, intolerance of uncertainty and prediction in autistic pupils. *Education Sciences*, 13(6), 575. <https://doi.org/10.3390/educsc13060575>

- Gentil-Gutiérrez, A., Cuesta-Gómez, J. L., Rodríguez-Fernández, P., & González-Bernal, J. J. (2021). Implication of the sensory environment in children with autism spectrum disorder: Perspectives from school. *International Journal of Environmental Research and Public Health*, 18(14), 7670. <https://doi.org/10.3390/ijerph18147670>
- Ghaemmaghami, M., Hanley, G. P., & Jessel, J. (2021). Functional communication training: From efficacy to effectiveness. *Journal of applied behavior analysis*, 54(1), 122–143. <https://doi.org/10.1002/jaba.762>
- Gómez-Marí, I., Sanz-Cervera, P., & Tárraga-Mínguez, R. (2022). Teachers' attitudes toward autism spectrum disorder: A systematic review. *Education Sciences*, 12(2), 138. <https://doi.org/10.3390/educsci12020138>
- Goodwin, J., Rob, P., Freeston, M., Garland, D., Grahame, V., Kernohan, A., Labus, M., Osborne, M., Parr, J. R., & Wright, C. (2022). Caregiver perspectives on the impact of uncertainty on the everyday lives of autistic children and their families. *Autism*, 26(4), 827–838. <https://doi.org/10.1177/13623613211033757>
- Hendrix, N. M., Pickard, K. E., Binion, G. E., & Kushner, E. (2022). A systematic review of emotion regulation in parent-mediated interventions for autism spectrum disorder. *Frontiers in Psychiatry*, 13, 846286. <https://doi.org/10.3389/fpsy.2022.846286>
- Hettinger, K., Lazarides, R., Rubach, C., & Schiefele, U. (2021). Teacher classroom management self-efficacy: Longitudinal relations to perceived teaching behaviors and student enjoyment. *Teaching and Teacher Education*, 103, 103349. <https://doi.org/10.1016/j.tate.2021.103349>
- Laverty, C., Oliver, C., Moss, J., Nelson, L., & Richards, C. (2020). Persistence and predictors of self-injurious behaviour in autism: a ten-year prospective cohort study. *Molecular autism*, 11(1), 8. <https://doi.org/10.1186/s13229-019-0307-z>
- Lord, C., Charman, T., Havdahl, A., Carbone, P., Anagnostou, E., Boyd, B., Carr, T., De Vries, P. J., Dissanayake, C., & Divan, G. (2022). The Lancet Commission on the future of care and clinical research in autism. *The Lancet*, 399(10321), 271–334. [https://doi.org/10.1016/S0140-6736\(21\)01541-5](https://doi.org/10.1016/S0140-6736(21)01541-5)
- Mallory, C., & Keehn, B. (2021). Implications of sensory processing and attentional differences associated with autism in academic settings: An integrative review. *Frontiers in Psychiatry*, 12, 695825. <https://doi.org/10.3389/fpsy.2021.695825>
- Muharib, R., Dowdy, A., Rajaraman, A., & Jessel, J. (2022). Contingency-based delay to reinforcement following functional communication training for autistic individuals: A multilevel meta-analysis. *Autism*, 26(4), 761–781. <https://doi.org/10.1177/13623613211065540>
- Rosello, B., Berenguer, C., Baixauli, I., García, R., & Miranda, A. (2020). Theory of mind profiles in children with autism spectrum disorder: Adaptive/social skills and pragmatic competence. *Frontiers in psychology*, 11, 567401. <https://doi.org/10.3389/fpsyg.2020.567401>
- Samudre, M. D., LeJeune, L. M., Ascetta, K. E., & Dollinger, H. (2022). A systematic review of general educator behavior management training. *Journal of Positive Behavior Interventions*, 24(1), 69–84. <https://doi.org/10.1177/10983007211020784>
- Schmidt, E. M., Hoffman, J. A., Mule, C., & Briesch, A. (2021). Effects of a teacher training program to promote physically active play among preschoolers with autism spectrum disorders. *Journal of school psychology*, 85, 57–79. <https://doi.org/10.1016/j.jsp.2021.01.003>
- Simpson, K., Adams, D., Ambrose, K., & Keen, D. (2021). “My cheeks get red and my brain gets scared”: A computer assisted interview to explore experiences of anxiety in young children on the autism spectrum. *Research in developmental disabilities*, 113, 103940. <https://doi.org/10.1016/j.ridd.2021.103940>
- Sivathanasan, S., Eldeeb, S., Northrup, J. B., Antezana, L., Ionadi, A., Wakschlag, L. S., & Mazefsky, C. A. (2024). Early childhood aggression in autistic and non-autistic preschoolers: Prevalence, topography, and relationship to emotional reactivity. *JAACAP open*, 2(2), 112–125. <https://doi.org/10.1016/j.jaacop.2023.12.003>
- Smith, T. E., Thompson, A. M., & Maynard, B. R. (2022). Self-management interventions for reducing challenging behaviors among school-age students: A systematic review. *Campbell systematic reviews*, 18(1), e1223. <https://doi.org/10.1002/cl.1223>

- Soares, E. E., Bausback, K., Beard, C. L., Higinbotham, M., Bunge, E. L., & Gengoux, G. W. (2021). Social skills training for autism spectrum disorder: A meta-analysis of in-person and technological interventions. *Journal of technology in behavioral science*, 6(1), 166–180. <https://doi.org/10.1007/s41347-020-00177-0>
- Steenfeldt-Kristensen, C., Jones, C. A., & Richards, C. (2020). The prevalence of self-injurious behaviour in autism: A meta-analytic study. *Journal of Autism and Developmental Disorders*, 50(11), 3857–3873. <https://doi.org/10.1007/s10803-020-04443-1>
- Tong, P., & An, I. S. (2024). Review of studies applying Bronfenbrenner's bioecological theory in international and intercultural education research. *Frontiers in psychology*, 14, 1233925. <https://doi.org/10.3389/fpsyg.2023.1233925>
- Yada, A., Leskinen, M., Savolainen, H., & Schwab, S. (2022). Meta-analysis of the relationship between teachers' self-efficacy and attitudes toward inclusive education. *Teaching and Teacher Education*, 109, 103521. <https://doi.org/10.1016/j.tate.2021.103521>
- Yu, Q., Li, E., Li, L., & Liang, W. (2020). Efficacy of interventions based on applied behavior analysis for autism spectrum disorder: a meta-analysis. *Psychiatry investigation*, 17(5), 432. <https://doi.org/10.30773/pi.2019.0229>
- Zeidan, J., Fombonne, E., Scora, J., Ibrahim, A., Durkin, M. S., Saxena, S., Yusuf, A., Shih, A., & Elsabbagh, M. (2022). Global prevalence of autism: A systematic review update. *Autism Research*, 15(5), 778–790. <https://doi.org/10.1002/aur.2696>