

2023 clinical practice guidelines on autism spectrum disorder in children and adolescents in Singapore

Chui Mae Wong^{1,2,3,4} FAMS, Mariam Aljunied⁵ PhD, Daisy Kwai Lin Chan^{1,2,3,4,6} FAMS, Janice Mun Yi Cheong⁷ MA (Applied Psychology), Bernard Chew⁸ MEd, Chee Hon Chin⁹ MRCPsych, Sylvia Henn Tean Choo^{1,2,3,4} FAMS, Angelia Hwee Ling Chua¹⁰ FCFP, Magdalene Tze Suang Foo⁹ MSc (Family and Systemic Psychotherapy), Tze Jui Goh⁹ DPsych, Majeed Khader¹¹ PhD, Stephenie Koon Miang Khoo¹² MA (Applied Psychology), Hwan Cui Koh¹ PhD, Wee Bin Lian¹³ FAMS, Hong Huay Lim¹⁴ FAMS, Kenneth Kin-Loong Poon¹⁵ PhD, Zi Lin Sim¹² PhD, Min Sung⁹ FAMS, Peng Chian Tan¹⁵ MA (Occupational Therapy), Sarah Yong¹⁶ MA (Speech Language Pathology), Guiyue Zhang¹⁷ MA (Applied Psychology), Ramkumar Aishworiya^{2,17} FAMS

ABSTRACT

Introduction: Autism is a neurodevelopmental condition that is increasing in prevalence worldwide. There has been an exponential increase in autism-related research since 2010, when the first Singapore Clinical Practice Guidelines (CPG) on autism was published. Understanding of autism has since evolved to adopt a lifespan approach beyond that of a childhood condition. The aim of this CPG was to provide an updated set of recommendations for children and adolescents to aid clinical practice for professionals.

Method: A multidisciplinary workgroup that comprised representatives from various sectors worked on this CPG. Clinical questions were organised into 10 different sections, each with its own subgroup of members. Seventeen existing international guidelines were evaluated using the Appraisal of Guidelines for REsearch & Evaluation II (AGREE-II) framework, of which 4 met criteria to act as references. Literature review across multiple databases was conducted between January 2011 to 2023; Grading of Recommendations, Assessment, Development and Evaluation (GRADE-like) methodology was used to

synthesise evidence. Recommendation statements were derived, following Delphi-style consensus surveys among the workgroup. The draft guidelines underwent external review and public consultation before being formalised.

Results: Recommendation and good practice statements pertaining to care of children and adolescents on the autism spectrum across 10 different sections were developed. Evidence matrices complement these recommendations and detail relevant evidence behind each recommendation statement.

Conclusion: It is intended for these guidelines to promote effective management and healthcare services for children and adolescents on the autism spectrum, by reinforcing good and evidence-based clinical practice within our national context.

Ann Acad Med Singap 2024;53:241-52

Keywords: autism, autistic disorder, child, clinical guidelines, GRADE, recommendations, consensus

The Annals is an open access journal, allowing non-commercial use under CC BY-NC-SA 4.0.

¹ Department of Child Development, KK Women's and Children's Hospital, Singapore

² Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

³ Duke-NUS Medical School, Singapore

⁴ Lee Kong Chian School of Medicine, Singapore

⁵ Special Educational Needs Division, Ministry of Education, Singapore

⁶ Department of Neonatal and Developmental Medicine, Singapore General Hospital

⁷ Department of Psychological Medicine, KK Women's and Children's Hospital, Singapore

⁸ St Andrew's Autism Centre, Singapore

⁹ Department of Developmental Psychiatry, Institute of Mental Health, Singapore

¹⁰ National Healthcare Group Polyclinics, Singapore

¹¹ Ministry of Home Affairs Singapore

¹² Autism Resource Centre (Singapore)

¹³ SpecialKids Child Health & Development Clinic, Singapore

¹⁴ CaringSG, Singapore

¹⁵ National Institute of Education, Nanyang Technological University, Singapore

¹⁶ Specialised Assistive Technology Centre, SPD, Singapore

¹⁷ Child Development Unit, Khoo Teck Puat-National University Children's Medical Institute, National University Hospital, Singapore

Correspondence: Dr Ramkumar Aishworiya, Child Development Unit, Khoo Teck Puat-National University Children's Medical Institute, National University Hospital, 1E Kent Ridge Road, Singapore 199228. Email: paearam@nus.edu.sg

CLINICAL IMPACT

What is New

- These updated clinical practice guidelines now cover an expanded age-range of children and adolescents on the autism spectrum.
- As such, there are new sections on “Education and Transition”, “Co-occurring Conditions in Autism” and “Follow-up and Prognosis” as compared to the previous 2010 edition.

Clinical Implications

- The guidelines use rigorous methodology to provide professionals with evidence-based recommendations on various aspects related to autism, taking into consideration local context and cost-effectiveness, leading to locally-relevant clinical applicability.

INTRODUCTION

Autism spectrum disorder (ASD) is a neurodevelopmental condition that presents as differences in social communication and social interaction, together with restricted, repetitive behaviours.¹ These social communication and interaction differences, as well as restricted, repetitive behaviours, are also referred to as the “core symptoms” of autism. The first edition of the Academy of Medicine, Singapore-Ministry of Health (AMS-MOH) Clinical Practice Guidelines (CPG) on ASD in Pre-school Children was published in 2010.² Since then, research within the field of autism increased exponentially, giving rise to a need for updated guidelines that cover a wider age range of children. Apart from new and expanded sections including “Co-occurring Conditions in Autism”, “Education and Transition”, “Follow-up and Prognosis” and “Professional Training”, the 2023 CPG also takes significant steps in framing autism within the concept of neurodiversity, and using neurodiversity-affirming language wherever possible. The guidelines do not seek to cure autism but to improve care and services for the autistic community.

The prevalence of autism in Singapore is estimated to be 1 in 150 of the population,³ but some countries report a prevalence as high as 1 in 36.⁴ The support needs and prognosis are variable between individuals, whose needs also evolve across the lifespan. There are also significant long-term demands placed on many caregivers.⁵ The majority of individuals are diagnosed in childhood, hence the importance of having

clear evidence-based guidelines focusing on this age group.

Objectives and scope

The primary objectives of the guidelines are to:

- (1) Promote effective healthcare for children and adolescents on the autism spectrum, by reinforcing good and evidence-based clinical practice, as well as to facilitate changes in professional practice that may not be consistent with current best practice.
- (2) Evaluate and promote evidence-based practices within the local Singapore context.

The guidelines are written to assist professionals who are involved in the surveillance, screening, diagnosis, intervention and long-term management of children and adolescents on the autism spectrum; as well as for caregivers. The subterms “healthcare professionals” and “educational professionals” are used where these may be distinct, while “professionals” encompass both groups. Intervention and management of any autistic child should be individualised depending on specific needs, with input from experienced professionals who have sound knowledge of guideline recommendations.

Target population

The target population covered by these guidelines includes children from infancy to adolescence who have autism of any severity. Where appropriate, special groups have been given special attention, such as girls on the autism spectrum, racial or cultural differences, or socially-disadvantaged families.

METHOD

The 22-member core workgroup and 15 subgroup members comprised developmental paediatricians, psychiatrists, a primary care physician, allied health professionals (psychologists, speech and occupational therapists, and a social worker), educators, early interventionists, and most importantly, caregivers of children on the autism spectrum. The workgroup members represented public and private healthcare sectors, the educational sector, and various social service agencies.

Existing local publications were reviewed to identify service gaps, such as the “Autism Enabling Masterplan” by the Autism Network Singapore,⁶ and “Understanding the Quality of Life of Children and Youth” study by the National Council for Social Services.⁷ Seventeen international guidelines on autism were independently reviewed and rated using the Appraisal of Guidelines for REsearch & Evaluation II (AGREE-II) Instrument,⁸

using a staged appraisal approach with a focus on domain 3 to achieve >70% as a priority, and >50% for domains 1, 2, 4 and 6 as secondary requirements. Only 4 existing guidelines were of sufficiently high quality for use as references.⁹⁻¹²

Key Population, Intervention, Comparator, Outcome (PICO) clinical questions were developed and search strategies using key words from these were run in the following electronic databases: CINAHL, Cochrane, Embase, Medline, PsycINFO, Proquest, PubMed, ScienceDirect, Scopus, Web of Science, as well as grey literature databases (e.g. Google Scholar, Proquest, ClinicalTrials.gov, conference abstracts). The search period was restricted to January 2011 to June 2023. Systematic reviews, meta-analyses, interventional and observational studies were evaluated using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) methodology,¹³ taking into account certainty and magnitude of effects, risk-benefit balance, cost-effectiveness, feasibility, stakeholder acceptability, and the context of prevailing legal and national policies in Singapore. Key recommendation (R) or good practice point (GPP) statements were then derived from the evidence collated into an evidence matrix (EM). Evidence that was not amenable to GRADE evaluation resulted in GPP instead of R statements, but both R and GPP statements hold similar importance in terms of implementation. All statements underwent workgroup-wide consensus rating on a scale of 1 (strongly disagree) to 9 (strongly agree), using the RAND/UCLA Appropriateness Method to calculate a median score, Interpercentile Range Adjusted for Symmetry score, and a disagreement index.¹⁴ Statements that reflected disagreement or any consensus rating under 5 were revised and put through further rounds of consensus survey voting until group consensus was obtained.

The final draft of the guidelines was reviewed by a panel of 6 independent external local and international reviewers, which included autistic individuals and their caregivers, and was also published on the College of Paediatrics and Child Health, Singapore website for a month for a public consultation exercise. Comments from the reviewers and public consultation were taken into account in the formation of the final recommendations.

A new scoping review has been planned for 2028.

KEY RECOMMENDATIONS

The full “Main Guideline Document”, together with the complete list of references, the “Executive Summary of Recommendations”, “Lay Version”, and “Supplement 1 (Evidence

Matrices)” and “Supplement 2 (Public Consultation and External Reviews)” are available on the Academy of Medicine, Singapore website (<https://www.ams.edu.sg/latest-news/2023-guidelines-on-autism-spectrum-disorder-in-children-and-adolescents>).

Surveillance, screening and diagnosis

As in the 2010 CPG, early identification of autism (GPP1.1) via an ongoing national developmental surveillance programme (GPP1.2) remains key.¹⁵ Effective developmental surveillance should take place over sequential and repeated visits as a child grows¹⁶ (GPP1.3). Early signs of autism may not always be evident in very young children, or stereotypical behaviours may only become apparent at a later age. Apart from developmental surveillance being conducted during well-child visits with healthcare professionals (GPP1.4), preschool teachers’ concerns about a child’s communication, social interaction, play and behaviour should also be elicited in preschool developmental surveillance programmes (GPP1.5), and early specialist referrals initiated if concerns are noted (GPP1.6). Early signs of autism are listed in Table 1 and highlighted in GPP1.7. Additionally, professionals should remain vigilant for possible autism in any child or adolescent with ongoing difficulties relating to communication, social interaction, behaviour or mental health (GPP1.8).

Developmental screening refers to the use of brief, validated and standardised screening tools to identify children who might require a comprehensive evaluation for developmental delays/disorders.¹⁶ Level I screening is conducted with the general population (i.e. an unselected group), while Level II screening is conducted with selected populations with a higher likelihood of autism, such as younger siblings of autistic children.¹⁷ Commonly used screening tools include the Modified Checklist for Autism in Toddlers, Revised with Follow-up (M-CHAT-R/F). While the universal use of autism-specific screening tools in the general paediatric population is not currently recommended (R1.10), targeted screening may be considered for children with factors associated with an increased likelihood for developing autism (GPP1.9). These include the following:

- History of autism in a sibling
- Prematurity of <35 weeks’ gestation or birth weight <2500 g
- History of neonatal hypoxic encephalopathy
- Having a genetic syndrome associated with autism
- Intrauterine exposure to maternal anti-epileptic medication

Table 1. Early signs of autism.

The early signs of autism include the following:

At 12 months of age:

- Little or no eye contact
- Lack of social smiling or shared excitement with a glance or smile
- Lack of babbling
- Little or no use of waving bye, reaching for hugs, pointing to needs or holding up objects to show them to someone
- Little or no response to name being called.

At 18 months of age—all the above and including:

- No single words (e.g. mama, papa, bye-bye, etc.)
- Lack of imitation of actions (e.g. nursery rhyme actions) or words (e.g. trying to say a word when taught)
- Lack of interest in other children.

At any age:

- Avoidance of or difficulty maintaining eye contact
- Poor response to name being called
- Loss of previously acquired speech, babbling or social skills (regression)
- Preference to be alone or play alone, or difficulty making friends
- Difficulty in sharing interests or enjoyment with others
- Difficulty in understanding other people's feelings or reading their facial expressions
- Delayed speech and language development
- Repetitive language, echolalia (often repeating words or phrases when not meant to), excessive talking "at" others, or unusual prosody of speech (monotonous or accented)
- Repetitive play, behaviours or body movements
- Difficulties in adapting to changes in routines or environment
- Obsessions or extreme fixations on certain objects or topics
- Unusual reactions to the 5 senses (e.g. oversensitivity to sounds, tendency to stare closely at spinning things, tendency to sniff objects, etc.).

- Advanced parental age at child's birth (>40 years of age)
- Parental history of mental health condition.

The application of an autism-specific screening tool can supplement the clinical judgement of healthcare professionals but should not be used as the sole reason to initiate specialist referral or to exclude a diagnosis of autism (R1.11). Professionals who decide to implement the use of an autism screening tool should be aware of the psychometric properties (e.g. false positives, false negatives) and limitations of the tool, and variability in accuracy across different cultures and contexts (GPP1.12). They should also use these tools within the validated age range (R1.13). Neurophysiological or other biomarkers are not yet sufficiently developed to be accurate or reliable screening tools for autism (GPP1.14).

Professionals involved in diagnosing autism in children and adolescents should use the current version of either the Diagnostic and Statistical Manual of Mental Disorders (DSM)¹ or International Classification of Diseases¹⁸ (GPP1.15), and be aware that some children may not meet diagnostic criteria on the DSM-5-TR (5th edition, text revision; Table 2) when they would have done so on the DSM-IV-TR (4th edition, text revision). Some of these children may meet a diagnosis of social communication disorder (Table 3) instead, and may still need interventions similar to those on the autism spectrum (GPP1.16).

Children being evaluated for autism should have a medical examination to facilitate a comprehensive evaluation (GPP1.17), and a multidisciplinary approach to diagnosis is recommended whenever possible (GPP1.18). However, a single-clinician approach to diagnosing autism may be considered when the following conditions are met (GPP1.19):

- Conducted by specialist medical practitioners or psychologists with adequate training and experience in diagnosing autism in children and adolescents (Table 4).
- Include multisource feedback from various settings in order to obtain a comprehensive profile of the child/adolescent being assessed.
- Include direct observation and interaction with the child/adolescent being assessed.
- Include thorough contemporaneous documentation on the child/adolescent's symptoms of autism that meet the prevailing international diagnostic criteria for autism (e.g. DSM-5-TR)

Assessment and diagnosis of autism should not solely rely on autism-specific diagnostic instruments (e.g. Autism Diagnostic Observation Schedule), but should encompass a holistic profile of the child/adolescent including developmental, medical and social history; physical examination; consideration of differential diagnoses and co-existing conditions; cognitive, sensory, academic and adaptive behaviour profiles, as well as strengths, skills and needs to

Table 2. DSM-5-TR criteria for autism spectrum disorder (terminology as per DSM-5 publication).

To meet diagnostic criteria for autism spectrum disorder, a child must have persistent deficits in each of 3 areas of social communication and interaction (see A1 through A3 below) plus at least 2 of 4 types of restricted, repetitive behaviours (see B1 through B4 below):

- A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by all of the following, currently or by history:
1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions or affect; to failure to initiate or respond to social interactions.
 2. Deficits in nonverbal communicative behaviours used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
 3. Deficits in developing, maintaining and understanding relationships, ranging, for example, from difficulties adjusting behaviour to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.
- B. Restricted, repetitive patterns of behaviour, interests or activities, as manifested by at least 2 of the following, currently or by history:
1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g. simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
 2. Insistence on sameness, inflexible adherence to routines, or ritualised patterns of verbal or nonverbal behaviour (e.g. extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
 3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g. strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
 4. Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment (e.g. apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

Specify current severity:

Severity is based on social communication impairments and restricted, repetitive patterns of behaviour. For either criterion, severity is described in 3 levels: Level 3 – Requires very substantial support, Level 2 – Requires substantial support, and Level 1 – Requires support.

- C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
- E. These disturbances are not better explained by intellectual disability (ID) or global developmental delay. ID and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and ID, social communication should be below that expected for general developmental level.

Specify if:

- With or without accompanying intellectual impairment
- With or without accompanying language impairment
- Associated with a known medical or genetic condition or environmental factor
- Associated with another neurodevelopmental, mental, or behavioural disorder
- With catatonia

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger syndrome, or PDD-NOS should be given the diagnosis of autism spectrum disorder.

PDD-NOS: pervasive developmental disorder not otherwise specified

Table 3. DSM-5-TR criteria for social communication disorder (terminology as per DSM-5 publication).

- A. Persistent difficulties in the social use of verbal and nonverbal communication as manifested by all of the following:
1. Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.
 2. Impairment of the ability to change communication to match context or the needs of the listener, such as speaking differently in a classroom than on the playground, talking differently to a child than an adult and avoiding use of overly formal language.
 3. Difficulties following rules for conversation and storytelling, such as taking turns in conversation, rephrasing when misunderstood and knowing how to use verbal and nonverbal signals to regulate interaction.
 4. Difficulties in understanding what is not explicitly stated (e.g. making inferences). A non-literal or ambiguous means of language—for example, idioms, humour, metaphors and multiple meanings, which depend upon the context for the interpretation.
- B. The deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement or occupational performance, individually or in combination.
- C. The onset of the symptoms is in the early developmental period, but the deficits may not become fully manifest until social communication demands exceed limited capacity.
- D. The symptoms are not attributable to another medical or neurological condition, or to low abilities in the domains of word structure and grammar and are not better explained by autism spectrum disorder, intellectual disability, global developmental delay or another mental disorder.

Table 4. Criteria for specialist medical practitioners or psychologists with adequate training and experience in diagnosing autism in children and adolescents.

Criteria (both 1 and 2 need to be met)	
Professional qualification	<p>Medical practitioners Specialist registration with the Singapore Medical Council in paediatrics, psychiatry or neurology Or Psychologists Registered or eligible to be registered with Singapore Register of Psychologists (SRP) and holding a master or doctorate degree in clinical/neurological/educational psychology that has a practicum component.</p>
Clinical experience in autism diagnosis	The professional should have at least 3 years of experience working in a multidisciplinary team that conducts autism diagnostic assessments in order to have an understanding of the wide variation in presentation across the spectrum and of the normal variance in child development; how gender, cognitive ability and other medical/genetic factors may affect presentation; and have adequate decision-making abilities to know when to refer a child on for multidisciplinary team diagnoses instead. Having attended formal training on a validated autism-specific diagnostic tool would also be beneficial, as well as knowing when and how to use the tool appropriately.

facilitate management plans (R1.20). Information gathered to make a diagnosis should include reports on or observations of the child in various settings (GPP1.21), and professionals should consider that gender, cultural differences, and intellectual disability can affect presenting features (GPP 1.22–1.24).

Aetiology and investigations

As there is strong genetic heritability for autism, professionals should closely monitor children with first-degree relatives on the autism spectrum (GPP2.1), and be aware that some genetic conditions (e.g. Fragile X syndrome, Angelman syndrome, Tuberous sclerosis, Rett syndrome, PTEN Hamartoma tumour syndrome and Down syndrome) may be associated with autism (GPP2.2).¹⁹ Such children should be referred to a genetic specialist for diagnostic assessment and counselling (GPP2.10), and discussion on the appropriate test/s to be ordered (GPP2.11).²⁰ The use of some anti-epileptic medication (especially sodium valproate) during pregnancy is associated with an increased probability of the child developing autism, and healthcare professionals should discuss the indications and side-effects of various anti-epileptic medications with pregnant women when required (GPP2.4).²¹ However, the use of paracetamol and epidural analgesia during pregnancy and labour does not need to be avoided (GPP2.3, 2.5). There is insufficient evidence of an association between autism and maternal antidepressant use in pregnancy. Parents should be reassured that childhood vaccinations are not associated with autism, and should proceed with their child's vaccination schedule as recommended on the National Childhood Immunisation Schedule.²² Healthcare professionals should continue to provide nationally recommended childhood vaccinations

to autistic children, including the MMR (measles-mumps-rubella) vaccine (GPP2.6).

Investigations such as heavy metal concentration testing, magnetic resonance imaging of the brain, electroencephalography, and inborn error of metabolism screening are not routinely recommended, except for selected children who present with specific clinical features (GPP2.7–2.8, 2.12–2.14), or pica (GPP2.9). Routine stool investigations for yeast or microbiota profile are also not recommended (GPP2.15).

Intervention

The objectives of intervention in autism are to promote child health and well-being, enhance emerging competencies, minimise developmental delay, remediate disabilities, prevent functional deterioration, and promote adaptive parenting and overall family functioning. It is crucial to formulate an individualised plan with input from a variety of specialists, in response to the changing needs of the autistic child/adolescent across the developmental phases. Monitoring of response to any intervention is also a core element and responsibility in all clinical practice.

Evidence-based interventions for autism currently include augmentative and alternative communication (e.g. Picture Exchange Communication System),²³ cognitive behavioural therapy (CBT),²⁴ communication-based interventions (e.g. language training),²⁵ developmental interventions (e.g. Developmental Individual-Difference Relationship-Based model [DIR]/Floortime),²⁶ early intensive behavioural intervention (i.e. comprehensive Applied Behaviour Analysis intervention),²⁷ emotion regulation therapy (ERT), naturalistic developmental behavioural interventions (e.g. Early Start Denver Model, pivotal response training),²⁸ play-based intervention,²⁹ sensory

integration therapy,³⁰ sensory environmental modifications and sensory modulation strategies, social skills intervention³¹ and visual supports (R3.1–3.10, 3.12, 3.13). Weighted vests, however, are not recommended (R3.11). The evidence-based interventions largely aim to support and improve social communication skills, joint attention, social participation and play skills, and the acquisition of skills pertaining to self-care/adaptive abilities and daily routines in autistic individuals. Some intervention approaches, like CBT and ERT, more specifically target emotion-related issues, such as anxiety and anger.

Pharmacological treatment

Pharmacological treatment of any co-occurring conditions in autistic children/adolescents should only be undertaken by physicians with appropriate specialist training in the use of such medication. Physicians who prescribe more than one medication should be vigilant about the possibility of drug interactions, and monitor for clinical response and possible side effects. Response to medications may also be different for autistic children/adolescents. While pharmacological agents may be used for specific indications, psychological, behavioural and environmental strategies should continue to be used in conjunction with pharmacotherapy.

Currently, no pharmacological agent has sufficient evidence to justify use for improving the core symptoms of autism (R4.13–4.30). Ongoing research results are awaited for oxytocin and bumetanide. Some specific indications for use of pharmacological agents are presented below.

Attention-deficit hyperactivity disorder (ADHD). Methylphenidate should be the first-line medication, and be used in conjunction with non-pharmacological approaches (R4.1).³² Atomoxetine may be considered if methylphenidate has been tried unsuccessfully or is contraindicated/not tolerated (R4.2).³³ Guanfacine may be considered as a third-line agent (R4.3).³⁴

Challenging behaviours and psychiatric conditions. Risperidone and aripiprazole can be used for challenging behaviours (irritability and hyperactivity) in the short term, but can cause weight gain and somnolence (R4.4).³⁵ Other medications such as selective serotonin re-uptake inhibitors, tricyclic antidepressants, anticonvulsants, mood stabilisers and mirtazapine may be used for specific co-occurring mental health disorders, such as anxiety, depression or obsessive-compulsive disorder (R4.5–4.8).

Sleep. Melatonin can be considered for sleep issues if there is no benefit from a psychosocial intervention.³⁶ It should be used in conjunction with

a psychosocial intervention and in consultation with a specialist trained in assessing and managing sleep issues in autistic children/adolescents (R4.12).

Education and transition

Healthcare and educational professionals should adopt an individualised assessment approach, which takes into account a child's cognitive abilities, achievement skills, adaptive functioning, behavioural skills and socio-emotional competencies, when determining an appropriate educational placement and planning educational supports needed by autistic children across mainstream and Special Education (SPED) school settings.³⁷ For some children on the autism spectrum, the national curriculum and in-class support could be appropriate, whereas others may require significant curriculum customisation and instructional adaptations, which are offered in a SPED school setting.

The recommendation statements for education and transition highlight the importance of an inter-agency collaborative approach and caregiver/child involvement in deciding on educational placement options for autistic children, as well as for anticipating and planning ahead for key transition periods, such as from preschool to formal school settings, and then on to post-school pathways (i.e. employment support) (GPP5.1–5.19). Alignment with the Ministry of Education's professional practice guidelines^{37,38} and its Comprehensive Needs Assessment report for transition support are also recommended.

Complementary and alternative treatment

Complementary and alternative treatment or medicine (CAM) use is common among autistic children/adolescents although there is limited evidence for benefit for the majority of CAM. Given this and the potential for harm of some CAM treatments, professionals should be prepared to discuss the evidence for each CAM with caregivers (GPP6.1). If there is parental preference to use a specific CAM, shared decision-making between professionals and parents is strongly encouraged, such that treatment trials are time-based with clear objectives and outcome measures (GPP6.1). CAM treatments should not replace mainstream interventions, and implications on financial resources should also be considered.

The CAM therapies considered in these guidelines were evaluated in terms of evidence pertaining to benefits on the core symptoms of autism as well as the potential for harm. The recommendations are phrased such that CAM interventions that demonstrate no evidence of

Table 5. Summary of recommendations on complementary and alternative medicine.

Type of recommendation	Complementary and Alternative Medicine (CAM)
CAM that should NOT be used in the treatment of children and adolescents on the autism spectrum	Antimicrobial therapy Aromatherapy Chelation therapy Chiropractic, osteopathy and craniosacral therapy Facilitated communication Helminth therapy Hyperbaric oxygen therapy Immunoglobulin therapy Microbial transfer therapy Stem cell therapy Vagal nerve stimulation
CAM that is not recommended as treatment for core symptoms of autism in children and adolescents	Acupuncture Amino acid supplementation Animal-assisted interventions Art therapy Auditory integration therapy Camel milk Coenzyme Q10 Dance movement therapy Digestive enzymes Folinic acid Gluten-free casein-free (GFCF) diet Ketogenic diet Mesalazine Mindfulness intervention Minerals including zinc, magnesium and iron Neurofeedback Omega-3 fatty acids Probiotics Qigong massage or other types of massage Secretin Sulforaphane Transcranial direct current stimulation Vitamins including B12 and B6
CAM that may be considered in children and adolescents on the autism spectrum	Music therapy Visual motor exercises

treatment benefit and/or significant potential for harm “should not be used”, while those with insufficient evidence of treatment benefit with no/low potential for harm are “not recommended”. A summary of these recommendations is shown in Table 5; while detailed references for each CAM is available in the published guidelines.

CAM therapies that should not be used in the treatment of autism include antimicrobial therapy (including antibiotics and antifungal agents), aromatherapy, chelation therapy, chiropractic, osteopathy and craniosacral therapy, facilitated communication, helminth therapy, hyperbaric oxygen therapy, immunoglobulin therapy, microbial transfer therapy, stem cell therapy and vagal nerve stimulation (R6.18–6.20, 6.22–6.25, 6.27, 6.34, 6.37, 6.41).

CAM therapies that are not recommended as treatment for core symptoms of autism include acupuncture, amino acid supplementation, animal-assisted interventions, art therapy, auditory integration therapy, camel milk, coenzyme Q10, dance movement therapy, digestive enzymes,

folinic acid, gluten-free casein-free (GFCF) diet, ketogenic diet, mesalazine, mindfulness intervention, minerals including zinc, magnesium and iron, neurofeedback, omega-3 fatty acids, probiotics, qigong massage or other types of massage, secretin, sulforaphane, transcranial direct current stimulation and vitamins including B12 and B6 (R6.2, 6.4–6.6, 6.8–6.17, 6.21, 6.26, 6.28, 6.29, 6.31, 6.32, 6.35, 6.36, 6.39, 6.40).

While vision therapy is not recommended as treatment for core symptoms of autism, visual motor exercises may be considered for selected children who have visual difficulties. There is emerging evidence that such exercises have the potential to improve social communication and reduce repetitive behaviours in these children³⁹ (R6.33). Similarly, music therapy may be recommended as a complementary intervention approach due to evidence for an increase in global improvement, improved quality of life and reduced total autism severity following its use⁴⁰ (R6.30).

Guiding principles in the use of CAM also include the recommendation that a healthy diet of a

variety of fresh foods is recommended in all autistic children/adolescents, similar to the general population. Healthcare professionals should be equipped with information on recommended daily allowances of nutritional supplements and be able to discuss with caregivers the possible benefits and harms of the various supplements and dosages. Intake of vitamins, minerals and probiotics in the form of natural fresh food should be encouraged (GPP6.3). Those who exhibit symptoms suggestive of a vitamin, mineral or amino acid deficiency should be evaluated and treated following appropriate clinical guidelines similar to the general population (R6.7). Finally, autistic children/adolescents are recommended to engage in a variety of physical activities, at age-appropriate intensity and frequency, as per standard guidelines pertaining to physical activity in children (R6.38).

Co-occurring conditions

Co-occurring conditions are common in autism and should be considered when symptoms and signs of conditions are present, independent from the core features of autism.⁴¹ These conditions can be classified into neurodevelopmental conditions, medical conditions and mental health conditions (Table 6). Challenges in recognising co-occurring conditions include atypical presentations different from the general population, and diagnostic overshadowing with over-attribution of symptoms to autism alone.⁴¹ Such conditions can have negative effects on the overall functioning of the child/adolescent, as well as on the individual and their family's quality of life. It is thus important that autistic children/adolescents be followed up serially at spaced intervals in a holistic manner to identify symptoms of co-occurring conditions, if any (GPP7.1).

Neurodevelopmental conditions that are known to be associated with autism include learning difficulties, impaired adaptive function, ADHD, developmental coordination disorder, language disorder, intellectual disability and sensory processing difficulties.^{42,43} Professionals should be aware of the increased likelihood of these conditions and initiate appropriate specialist referrals and/or management in the presence of related symptoms (R7.2–7.6, 7.8). Children who have global developmental delay (GDD) should be evaluated towards the end of the child's preschool period for the presence of intellectual disability as the diagnosis of GDD should not be used when the child is past 5 years of age (R7.7).

Mental health conditions including anxiety, depression, obsessive compulsive disorder and bipolar disorders are common in individuals on the autism spectrum.⁴⁴ Hence, professionals should

Table 6. Summary of co-occurring conditions in autism.

Category	Condition
Neurodevelopmental conditions	Attention-deficit hyperactivity disorder Developmental coordination disorder Impaired adaptive function Intellectual disability Language disorder/impairment Learning difficulties Sensory processing difficulties
Mental health conditions	Anxiety disorder Bipolar disorder Depressive disorder Eating disorder Gender variance and dysphoria Obsessive compulsive disorder Oppositional defiant disorder Schizophrenia Tourette syndrome and tic disorder
Medical conditions	Dental disorders Epilepsy Feeding challenges Gastrointestinal disorders Genetic disorders Hearing impairment Obesity Puberty-related conditions Sleep disorders Visual challenges

have a high index of suspicion for the presence of such conditions and refer those with clinical symptoms to appropriate specialist services for further evaluation (R7.9). Likewise, given the association between gender variance and autism, those who present with gender variance issues (where gender variance is an umbrella term used to describe gender identity, expression or behaviour that falls outside of culturally-defined norms associated with a specific gender) may need further referral for evaluation and support for their social-emotional needs (GPP7.10).⁴⁵

Several medical conditions are known to occur more commonly in autistic children/adolescents.⁴⁶ These include feeding-related challenges, gastrointestinal disorders (e.g. constipation, reflux disease), hearing impairment, genetic conditions, epilepsy and visual impairment (R7.11, R7.13, R7.16, GPP2.10, GPP2.13, GPP7.12, GPP7.15, GPP7.20). Gastrointestinal disorders such as constipation may have atypical presentations, hence evaluation for the presence of a gastrointestinal disorder should be considered in those who present with unexplained, persistent or sudden-onset atypical behavioural symptoms (such as head banging or increased stimulatory behaviours)⁴⁷ (GPP7.14). Conditions including sleep disorders, obesity, dental conditions (e.g. oral cavities) and precocious puberty (in girls) also occur more commonly in autistic children/adolescents and should be

assessed during follow-up and acted on as clinically indicated (R7.18, GPP7.17, GPP7.19, GPP7.21).

Follow-up and prognosis

Long-term prognosis in autism has been associated with the presence of intellectual disability, childhood language development and severity of features of autism.⁴⁸ In addition to these, positive parenting practices, age-appropriate adaptive skills and greater opportunities for inclusion have all been positively associated with better prognosis. Hence, among autistic children/adolescents, interventions that promote positive parenting, mothering and fathering, including parent training on responding to behaviours of concern should be encouraged (GPP8.1).⁵⁰ The focus of intervention should address the holistic needs of these individuals across the entire lifespan—i.e. adaptive functioning and emotional well-being, in addition to academic achievement; and the goals of the child/adolescent and their family should also be considered (GPP8.2). Systematic transition planning that is proactive, holistic and person-centric should be encouraged for predictable major transitions, including graduation from formal schooling (GPP8.3).

Caregiver and family support

Professionals should recognise the potential impact of autism on the social, economic, physical and mental health of caregivers and adopt a collaborative and family-centred approach to support them (GPP9.1, GPP9.3). This will facilitate the provision of age- and needs-appropriate information and also support caregivers including siblings in accessing appropriate services for the child/adolescent as well as for themselves (GPP9.2). Professionals should assess caregivers' emotional well-being and provide further support as appropriate as mental health conditions (e.g. anxiety) are common in this group (GPP9.4).⁵⁰ Caregivers will require information and support across the individual's lifespan and transition points, including onset of adolescence/puberty, across educational settings and into post formal-schooling transitions (GPP9.5).⁵¹ Caregiver education/training programmes should be incorporated within intervention programmes whenever possible, as these can improve parent-child interaction and may translate to positive child/adolescent outcomes (GPP9.6).⁵²

Professional training

Any professional who works with autistic children/adolescents (including support staff within healthcare and educational settings) should be provided with access to information on autism,

which can be varied in forms of delivery, depth and context and use neurodiversity-affirming language (GPP10.1). Lack of knowledge related to autism has been frequently cited as a barrier in providing optimal care and such tailored information with resources to facilitate further self-directed learning can help to address this.⁵³

Implementation of guidelines

These guidelines have been disseminated widely to stakeholders across various sectors within Singapore, through formats including a formal launch at a major national paediatric conference, a symposium attended by professionals across healthcare, community care and educational settings, and email distribution. The guidelines and all related materials have also been made freely available online. A lay version of the guidelines designed for caregivers has been distributed to various agencies that serve caregivers of children and adolescents.

Potential facilitators and barriers to implementation

Strengths of these guidelines include the specific consideration given to the local context including the availability of interventions and resources, cost-effectiveness, cultural acceptability and local healthcare/educational systems. The multidisciplinary workgroup allowed for recommendations to be considered from multiple perspectives and applied across disciplines and sectors. The intentional incorporation of views of caregivers of individuals on the autism spectrum, expert reviews and public consultation have also strengthened these guidelines.

However, implementation of the recommendations in these guidelines would be under the purview of each relevant organisation (e.g. healthcare, educational or community intervention agency) and resource limitations (e.g. manpower or financial resources) may be a barrier to implementation. Such resource limitations may be applicable for varying sections of the guidelines, for example, manpower necessary for recommended transition support and financial resources for intervention provision. It is expected that the majority of the recommendations are in keeping with current practices, however, where differences in practice are present, the reason for these should be reviewed and addressed where possible.

CONCLUSION

As our understanding of autism continues to evolve, adoption of a lifespan approach to autism, beyond solely a childhood perspective is crucial. Care for children and adolescents on the autism spectrum

should be based on evidence-based practices and conducted in a holistic manner, placing the well-being of the individual and their family as the primary focus. These guidelines provide a comprehensive set of recommendations spanning several aspects of care to facilitate effective care for these children and adolescents based on good evidence-based principles.

Conflicts of interest

All authors declare that they have no affiliations or financial involvement with any commercial organisation with a direct financial interest in the subject or materials discussed in the manuscript.

REFERENCES

- American Psychiatric Association (APA). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision. (DSM-5-TR). 5th ed. Washington, D.C.: APA Publishing; 2022. Accessed 13 September 2023.
- Academy of Medicine Singapore-Ministry of Health Clinical Practice Guidelines Workgroup on Autism Spectrum Disorders. Academy of Medicine Singapore-Ministry of Health clinical practice guidelines: Autism Spectrum Disorders in pre-school children. *Singapore Med J* 2010;51:255-63.
- Ministry of Community Development, Youth and Sports, Singapore. 3rd Enabling Masterplan 2017-2021: Caring Nation, Inclusive Society. Singapore: Enabling Masterplan Steering Committee; 2016. https://eservice.nlb.gov.sg/fliplayer/data/booksg_publish/d/dda160d8-1259-4a94-8923-80d35244041b/web/html5/index.html?opf=tablet/BOOKSG.xml&launchlogo=tablet/BOOKSG_BrandingLogo_.png. Accessed 13 September 2023.
- Maenner MJ, Warren Z, Williams AR, et al. Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 8 Years—Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2020. *MMWR Surveill Summ* 2023;72:1–14.
- Shorey S, Ng ED, Haugan G, et al. The parenting experiences and needs of Asian primary caregivers of children with autism: A meta-synthesis. *Autism* 2020;24:591-604.
- Autism Network Singapore (ANS). Autism Enabling Masterplan: Towards a Better Life for Persons on the Autism Spectrum in Singapore. Singapore: Autism Resource Centre; 2021. <https://enablingmasterplan.autism.org.sg/>. Accessed 13 September 2023.
- National Council for Social Service (NCSS), Singapore. Understanding the Quality of Life of Children and Youth. Singapore: Translational Social Research Division, NCSS; 2022. <https://www.ncss.gov.sg/docs/default-source/ncss-publications-doc/pdfdocument/understanding-the-quality-of-life-of-children-and-youth.pdf>. Accessed 13 September 2023.
- Brouwers MC, Kho ME, Browman GP, et al. AGREE II: advancing guideline development, reporting and evaluation in health care. *CMAJ* 2010;182:E839-42.
- Whitehouse AJO, Evans K, Eapen V, et al. A National Guideline for the Assessment and Diagnosis of Autism Spectrum Disorders in Australia. Australia: Autism CRC; 2018. https://www.autismcrc.com.au/access/sites/default/files/resources/National_Guideline_for_Assessment_and_Diagnosis_of_Autism.pdf. Accessed 13 September 2023.
- National Institute for Health and Care Excellence (NICE). Clinical guideline [CG128]: Autism spectrum disorder in under 19s: recognition, referral and diagnosis. UK: NICE; 2017. <https://www.nice.org.uk/guidance/cg128>. Accessed 13 September 2023.
- National Institute for Health and Care Excellence (NICE). Clinical guideline [CG170]: Autism spectrum disorder in under 19s: support and management. UK: NICE; 2021. <https://www.nice.org.uk/guidance/cg170>. Accessed 13 September 2023.
- Scottish Intercollegiate Guidelines Network (SIGN). A National Clinical Guideline [SIGN 145]: Assessment, diagnosis and interventions for autism spectrum disorders. Edinburgh: SIGN; 2016. (SIGN publication no. 145). <https://www.sign.ac.uk/assets/sign145.pdf>. Accessed 13 September 2023.
- Guyatt GH, Oxman AD, Vist GE, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *BMJ* 2008;336:924-6.
- Fitch K, Bernstein SJ, Aguilar MD, et al. The RAND/UCLA Appropriateness Method User's Manual. Santa Monica, CA: RAND Corporation; 2001. https://www.rand.org/pubs/monograph_reports/MR1269.html. Accessed 13 September 2023.
- Koh HC, Ang SKT, Kwok J, et al. The Utility of Developmental Checklists in Parent-held Health Records in Singapore. *J Dev Behav Pediatr* 2016;37:647-56.
- Lipkin PH, Macias MM. Promoting Optimal Development: Identifying Infants and Young Children With Developmental Disorders Through Developmental Surveillance and Screening. *Pediatrics* 2020;145:e20193449.
- Petrocchi S, Levante A, Lecciso F. Systematic Review of Level 1 and Level 2 Screening Tools for Autism Spectrum Disorders in Toddlers. *Brain Sci* 2020;10:180.
- World Health Organization (WHO). International Classification of Diseases, 11th Revision (ICD-11). Geneva, Switzerland: WHO; 2019. <https://icd.who.int/browse11>. Accessed 13 September 2023.
- Schaefer GB, Mendelsohn NJ. Clinical genetics evaluation in identifying the etiology of autism spectrum disorders: 2013 guideline revisions. *Genet Med* 2013;15:399-407.
- Kreiman BL, Boles RG. State of the Art of Genetic Testing for Patients With Autism: A Practical Guide for Clinicians. *Semin Pediatr Neurol* 2020;34:100804.
- Christensen J, Grønberg TK, Sørensen MJ, et al. Prenatal valproate exposure and risk of autism spectrum disorders and childhood autism. *JAMA* 2013;309:1696-703.
- Gidengil C, Goetz MB, Newberry S, et al. Safety of vaccines used for routine immunization in the United States: An updated systematic review and meta-analysis. *Vaccine* 2021;39:3696-716.
- White EN, Ayres KM, Snyder SK, et al. Augmentative and Alternative Communication and Speech Production for Individuals with ASD: A Systematic Review. *J Autism Dev Disord* 2021;51:4199-212.
- Sharma S, Hucker A, Matthews T, et al. Cognitive behavioural therapy for anxiety in children and young people on the autism spectrum: a systematic review and meta-analysis. *BMC Psychol* 2021;9:151.
- Pacia C, Holloway J, Gunning C, et al. A Systematic Review of Family-Mediated Social Communication Interventions for Young Children with Autism. *Rev J autism Dev Disord* 2022;9:208-34.

26. Gosling CJ, Cartigny A, Mellier BC, et al. Efficacy of psychosocial interventions for Autism spectrum disorder: an umbrella review. *Mol Psychiatry* 2022;27:3647-56.
27. Asta L, Persico AM. Differential Predictors of Response to Early Start Denver Model vs. Early Intensive Behavioral Intervention in Young Children with Autism Spectrum Disorder: A Systematic Review and Meta-Analysis. *Brain Sci* 2022;12.
28. Ona HN, Larsen K, Nordheim LV, et al. Effects of Pivotal Response Treatment (PRT) for Children with Autism Spectrum Disorders (ASD): a Systematic Review. *Rev J Autism Dev Disord* 2020;7:78-90.
29. Kent C, Cordier R, Joosten A, et al. A Systematic Review and Meta-analysis of Interventions to Improve Play Skills in Children with Autism Spectrum Disorder. *Rev J Autism Dev Disord* 2020;7:91-118.
30. Schoen SA, Lane SJ, Mailloux Z, et al. A systematic review of ayres sensory integration intervention for children with autism. *Autism Res* 2019;12:6-19.
31. Wolstencroft J, Robinson L, Srinivasan R, et al. A Systematic Review of Group Social Skills Interventions, and Meta-analysis of Outcomes, for Children with High Functioning ASD. *J Autism Dev Disord* 2018;48:2293-2307.
32. Sturman N, Deckx L, van Driel ML. Methylphenidate for children and adolescents with autism spectrum disorder. *Cochrane database Syst Rev*. 2017;11:CD011144.
33. Patra S, Nebhinani N, Viswanathan A, et al. Atomoxetine for attention deficit hyperactivity disorder in children and adolescents with autism: A systematic review and meta-analysis. *Autism Res*. 2019;12:542-52.
34. Scahill L, McCracken JT, King BH, et al. Extended-Release Guanfacine for Hyperactivity in Children With Autism Spectrum Disorder. *Am J Psychiatry* 2015;172:1197-1206.
35. Mano-Sousa BJ, Pedrosa AM, Alves BC, et al. Effects of Risperidone in Autistic Children and Young Adults: A Systematic Review and Meta-Analysis. *Curr Neuropharmacol* 2021;19:538-52.
36. Rossignol DA, Frye RE. Melatonin in autism spectrum disorders: a systematic review and meta-analysis. *Dev Med Child Neurol* 2011;53:783-92.
37. Ministry of Education (MOE), Singapore. Professional Practice Guidelines: Psychoeducational Assessment & Placement of Students with Special Educational Needs. 2018. <https://www.moe.gov.sg/-/media/files/special-education/professional-practice-guidelines.pdf>. Accessed 13 September 2023.
38. Ministry of Education (MOE), Ministry of Social and Family Development (MSF) and Early Childhood Development Agency (ECDA), Singapore. Professional Practice Guidelines: Developmental and Psycho-Educational Assessments and Provisions for Preschool-Aged Children, 2021. [https://www.ecda.gov.sg/docs/default-source/default-document-library/parents/guidelines-\(for-professionals\)-2021.pdf](https://www.ecda.gov.sg/docs/default-source/default-document-library/parents/guidelines-(for-professionals)-2021.pdf). Accessed 13 September 2023.
39. Miyasaka JDS, Vieira RVG, Novalo-Goto ES, et al. Irlen syndrome: systematic review and level of evidence analysis. *Arq Neuropsiquiatr* 2019;77:194-207.
40. Geretsegger M, Fusar-Poli L, Elefant C, et al. Music therapy for autistic people. *Cochrane Database Syst Rev* 2022;5:CD004381.
41. Bougeard C, Picarel-Blanchot F, Schmid R, et al. Prevalence of Autism Spectrum Disorder and Co-morbidities in Children and Adolescents: A Systematic Literature Review. *Front Psychiatry* 2021;12:744709.
42. Khachadourian V, Mahjani B, Sandin S, et al. Comorbidities in autism spectrum disorder and their etiologies. *Transl Psychiatry* 2023;13:71.
43. Antshel KM, Russo N. Autism Spectrum Disorders and ADHD: Overlapping Phenomenology, Diagnostic Issues, and Treatment Considerations. *Curr Psychiatry Rep* 2019;21:34.
44. Lai MC, Kassee C, Besney R, et al. Prevalence of co-occurring mental health diagnoses in the autism population: a systematic review and meta-analysis. *Lancet Psychiatry* 2019;6:819-29.
45. Glidden D, Bouman WP, Jones BA, et al. Gender Dysphoria and Autism Spectrum Disorder: A Systematic Review of the Literature. *Sex Med Rev* 2016;4:3-14.
46. Al-Beltagi M. Autism medical comorbidities. *World J Clin Pediatr* 2021;10:15-28.
47. Buie T, Campbell DB, Fuchs 3rd GJ, et al. Evaluation, diagnosis, and treatment of gastrointestinal disorders in individuals with ASDs: a consensus report. *Pediatrics* 2010;125 Suppl:S1-18.
48. Kirby AV, Baranek GT, Fox L. Longitudinal Predictors of Outcomes for Adults With Autism Spectrum Disorder: Systematic Review. *OTJR (Thorofare N J)* 2016;36:55-64.
49. Woodman AC, Mailick MR, Greenberg JS. Trajectories of internalizing and externalizing symptoms among adults with autism spectrum disorders. *Dev Psychopathol* 2016; 28:565-81.
50. Ilias K, Cornish K, Kummar AS, et al. Parenting stress and resilience in parents of children with autism spectrum disorder (ASD) in Southeast Asia: A systematic review. *Front Psychol* 2018;9:280.
51. Fontil L, Gittens J, Beaudoin E, et al. Barriers to and Facilitators of Successful Early School Transitions for Children with Autism Spectrum Disorders and Other Developmental Disabilities: A Systematic Review. *J Autism Dev Disord* 2020;50:1866-81.
52. Diggle TTJ, McConachie HHR. Parent-mediated early intervention for young children with autism spectrum disorder. *Cochrane Database Syst Rev* 2003;CD003496.
53. Hurt L, Langley K, North K, et al. Understanding and improving the care pathway for children with autism. *Int J Health Care Qual Assur* 2019;32:208-23.