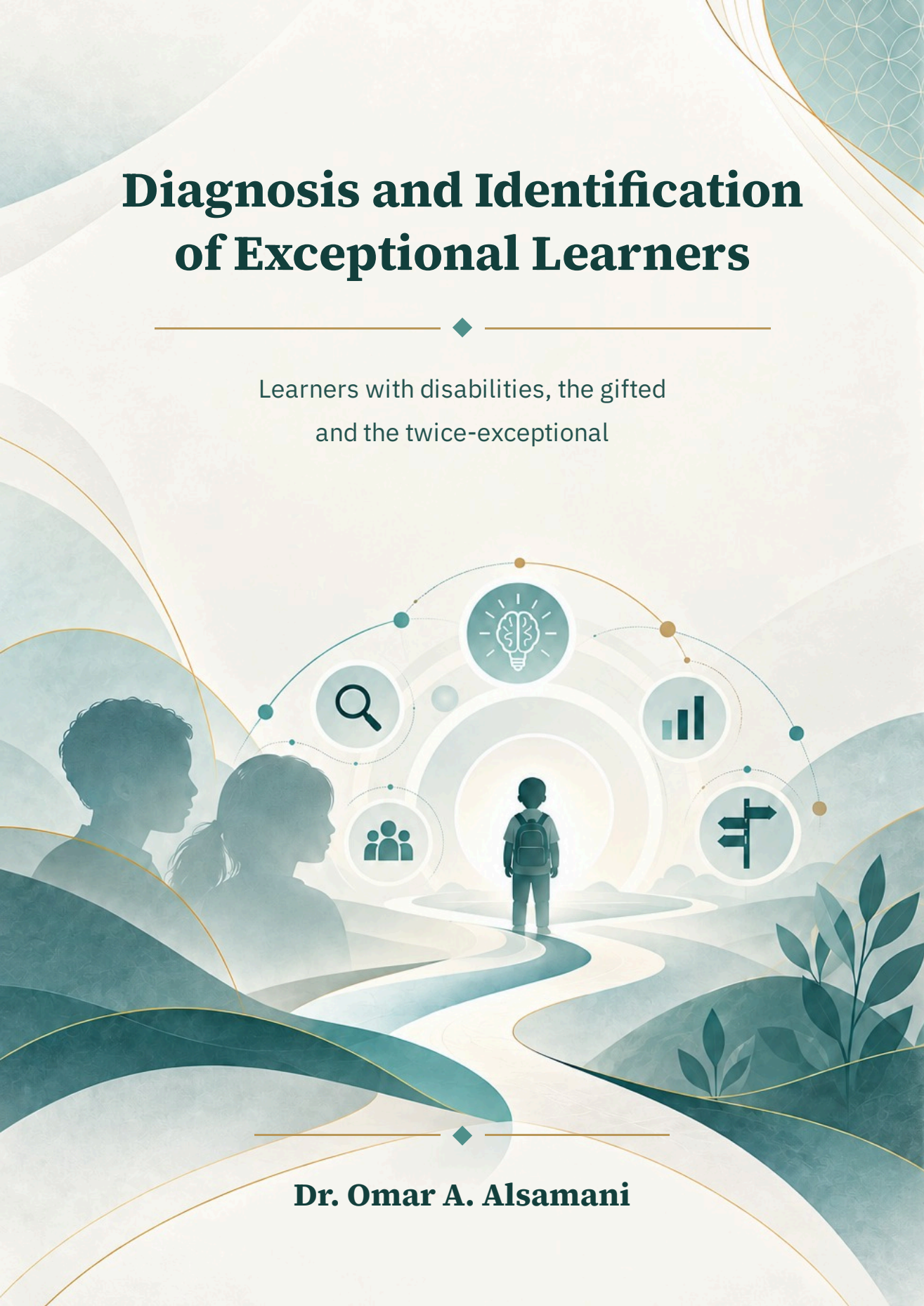


Diagnosis and Identification of Exceptional Learners

Learners with disabilities, the gifted
and the twice-exceptional



Dr. Omar A. Alsamani

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9

Chapter 9

Autism spectrum disorder

How do we know that a child has autism spectrum disorder? Who holds the authority to decide, with which instruments, and at what point does the evidence become strong enough to justify a judgment? In this chapter we trace the entire path, from the teacher's first observation in the classroom to the diagnostic decision.

Scene from a kindergarten

On an ordinary school morning, the kindergarten teacher notices that Yousef does not turn when she calls his name, yet turns at once when he hears a packet of biscuits being opened. He spends free play lining up small cars in a straight row, and if another child moves a single car out of place, he bursts into tears. During morning circle he repeats a line from a television commercial in exactly the tone in which he heard it.

The teacher wonders: Is this autism? Or is he a shy child who needs time to settle in? Or is something wrong with his hearing?

In this chapter we set out to answer the teacher's question systematically, returning to Yousef at each stage of the decision pathway (9.5) to show how a passing observation becomes a referral, then an evaluation, and finally a decision.

Chapter objectives

After studying this chapter, the reader should be able to:

- 1 Match described classroom behaviors to the five criteria for autism spectrum disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR), and classify the same case using the approach of the International Classification of Diseases (ICD-11).
- 2 Write an objective behavioral observation suitable for referral, and identify, in a given description, the red flags that call for evaluation without delay.
- 3 Sequence the steps of the decision pathway, and explain why hearing and vision testing comes before any diagnostic instrument.
- 4 Classify autism instruments as screening, rating, or diagnostic tools, and select for a described student the appropriate instrument and its form or module.
- 5 Interpret instrument results as they appear in a diagnostic report, and evaluate the meaning of published figures on instrument accuracy, prevalence, and the status of Arabic versions.
- 6 Judge whether the evidence is sufficient to make a diagnosis in a new case, distinguish autism from similar and co-occurring conditions, and justify that judgment.

Introduction

The diagnosis of autism spectrum disorder follows a long path. It usually begins with an observation from a teacher or a family, as in Yousef's kindergarten scene, and ends with a judgment by a trained specialist after evidence has been gathered from multiple sources. Each stop along the way has its own function and its own limits: red flags call for evaluation without delay; screening tools sort but do not diagnose; rating scales convey what is seen by those who know the child; and diagnostic instruments are not sufficient on their own. Precision matters all the more because the disorder may be misdiagnosed when hearing loss or a language disorder is the better explanation, and it may be overlooked when giftedness masks it or when a girl conceals her traits.

We open the chapter by defining the disorder and reading its prevalence figures (Section 9.1), then present the diagnostic criteria in DSM-5-TR (Section 9.2), support levels, specifiers, and the comparison with ICD-11 (Section 9.3), and early red flags and delayed identification in girls (Section 9.4). We then turn to the five-stage decision pathway (Section 9.5), the instrument profiles (Section 9.6), and reading the diagnostic report (Section 9.7), before applying all of this to three cases (Section 9.8). We close with differential diagnosis (Section 9.9), co-occurring conditions and medical evaluation (Section 9.10), and the Saudi and Arab context (Section 9.11).

9.1 What is autism spectrum disorder?

Autism spectrum disorder is a neurodevelopmental disorder: it is tied to the way the brain develops and functions, and its first signs appear in the early years of life. It is characterized by two core features: persistent difficulty in social communication and interaction, and restricted, repetitive patterns of behavior and interests (Lord et al., 2020).

The word **spectrum** signals that the disorder does not take a single form. We may meet a child who never speaks and needs help with most daily tasks, and an adolescent who talks fluently and excels in mathematics yet cannot tell when a classmate is joking and when he is serious. Both are on the same spectrum, but their needs differ greatly. For this reason, a report needs more than the statement “has autism”: it must also describe the level of support the student needs and any other conditions that accompany the autism.

In 2013, the fifth edition of the Diagnostic and Statistical Manual brought together under this single label several diagnoses that had been separate in the fourth edition, among them autistic disorder, Asperger's disorder, and pervasive developmental disorder not otherwise specified. Teachers may therefore come across a diagnosis of “Asperger's” in older student files. Today it falls within autism spectrum disorder and is usually described as autism without accompanying intellectual impairment and without accompanying language impairment.

How common is autism, and how should we read prevalence figures?

In the most recent report of the US Autism and Developmental Disabilities Monitoring Network, prevalence among 8-year-olds in 2020 was about 27.6 per 1,000, or roughly one child in 36, and it was about 3.8 times higher in boys (Maenner et al., 2023). In the Arab region, the figures vary widely:

- In a national survey in Qatar of children aged 6 to 11, prevalence was 1.14%, with a confidence interval of 0.89% to 1.46% (Alshaban et al., 2019).
- In Riyadh, the rate was 2.51% (about one child in 40) among 398 children aged 2 to 4 at five hospitals, with three boys for every girl (AlBatti et al., 2022).
- In Makkah and Jeddah, the number of children registered at 37 autism centers came to about 2.81 per 1,000 children (Sabbagh et al., 2021).

- A recent study reports that the official estimate in the Kingdom is about 0.6%, and estimates actual prevalence at between 1.7% and 1.8% (Khamees et al., 2025).

These differences do not mean that autism is ten times more common in one city than in another. Each figure answers a different question. A national survey that actively searches for children differs from a sample of hospital patients, which in turn differs from center registries that count only those who have reached services. Age, the screening instrument, and the case definition also differ. The first question to ask of any prevalence figure, then, is how these children were found. A low registry figure measures not so much prevalence as the gap between those who have the disorder and those who have reached a diagnosis.

❓ Common misconceptions

- **“It is caused by a cold mother or a neglectful family.”** This is an old hypothesis from the mid-twentieth century that has been shown to be false. Autism is a neurodevelopmental disorder; families do not cause it through the way they raise their children.
- **“Vaccines cause autism.”** Large-scale studies have found no association between vaccines and autism, including a meta-analysis covering more than a million children (Taylor et al., 2014).
- **“Every child with autism is a genius in some area.”** Exceptional abilities are present in only some. The spectrum spans every level of intellectual ability.
- **“If a child looks me in the eye, he doesn't have autism.”** Eye contact is one form of one criterion. Many autistic children do make eye contact, but in ways that do not serve communication.

9.2

Diagnostic criteria in DSM-5-TR

Diagnosis relies on one of two manuals: the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (**DSM-5-TR**), published by the American Psychiatric Association in 2022 (American Psychiatric Association, 2022), and the International Classification of Diseases, Eleventh Revision (**ICD-11**), published by the World Health Organization (World Health Organization [WHO], 2024), which is used to code diagnoses in health records in most countries. We present the DSM criteria here because they are more detailed and because most assessment instruments and reports are built on them; we then compare them with ICD-11 in 9.3. The manual requires five criteria to be met together. Two describe the symptoms themselves, and three are conditions without which the diagnosis is incomplete. Figure 9.1 summarizes this rule, and we then explain each criterion with examples.

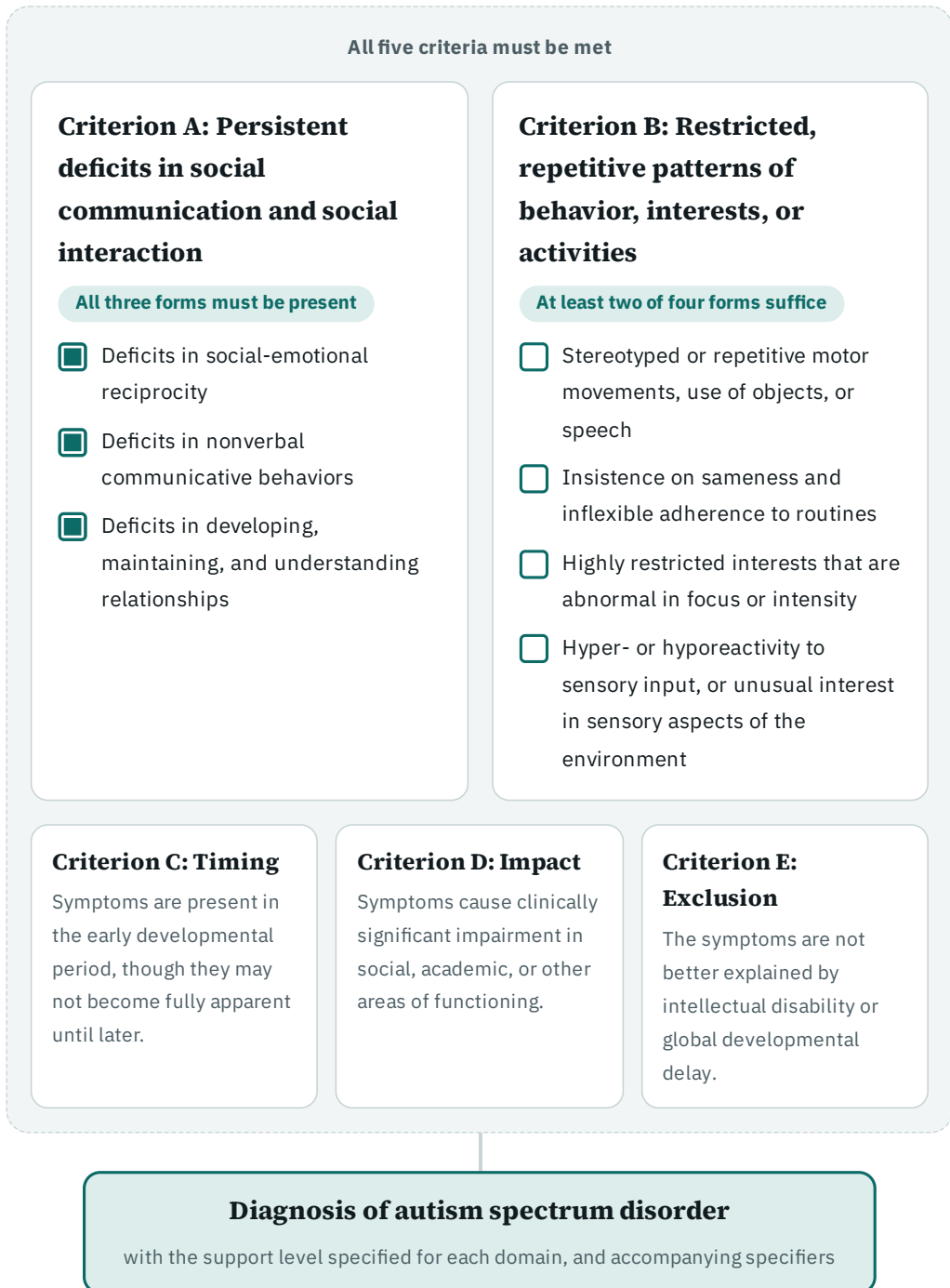


Figure 9.1: The five **DSM-5-TR** criteria. The filled boxes under Criterion A indicate that every form is required; the empty boxes under Criterion B indicate that two of the forms are sufficient. The absence of any one of the five criteria halts the judgment.

Criterion A: Persistent deficits in social communication and social interaction

This criterion requires **all three of the following forms** to be present, either currently or in the child's developmental history as the family reports it. The word “persistent” matters: what is meant is a stable pattern that recurs across different situations and on many days.

Form 1: Deficits in social-emotional reciprocity

That is, difficulty with the natural give-and-take between two people. Social interaction resembles a game of catch: one person throws, the other catches and throws back. An autistic child may catch the ball and not return it, or throw it without checking whether the other person is ready. Examples at school include the following:

- The child does not initiate conversation with classmates; when he does, it is usually to ask for something he wants, and rarely to share what interests him.
- He does not share his interest with others: he does not show the teacher his drawing to enjoy her praise, or point to an airplane in the sky to draw the attention of those around him. Specialists call this **joint attention** (**Joint attention**).
- In middle school, for example, he talks at length about a favorite topic without noticing that his classmate has lost interest.

Form 2: Deficits in nonverbal communicative behaviors

That is, in the body language we use without words to convey what we mean:

- Unusual eye contact: very little, an uncomfortable stare, or gaze that is not coordinated with speech.
- Limited use of gestures, such as pointing with a finger, nodding to agree, or waving goodbye.

- Facial expressions that do not fit the situation, or difficulty understanding other people's facial expressions and tone of voice.

Form 3: Deficits in developing, maintaining, and understanding relationships

- Difficulty with imaginative play with peers, such as playing “house” or “restaurant.”
- Difficulty adjusting behavior to the situation: behaving in class as on the playground, or addressing the principal as he would a classmate.
- Little interest in peers, or a wish for friendship without knowing how friendships are built and kept.

Why all three forms?

Because each form on its own may appear for other reasons. A shy child may avoid eye contact, a child with delayed language may not initiate conversation, and a child who has just moved to a new school may have no friends yet. It is the combination of all three, persisting across different situations, that points to a deeper pattern.

Criterion B: Restricted, repetitive patterns of behavior, interests, or activities

This criterion requires **at least two** of the following four forms, currently or in the developmental history:

Table 9.1: Forms of Criterion B and examples at school.

Form	What it means	Examples at school
1. Stereotyped movements, speech, or use of objects	Repeating the same movement or utterance without a clear communicative purpose	Hand flapping when excited. Repeating lines from cartoons in the same intonation, known as echolalia (Echolalia). Lining up pencils in a row instead of writing with them.
2. Insistence on sameness and adherence to routine	Intense distress at small changes, and adherence to specific rituals	A crying fit because the teacher changed his seat, or because the line took a different route to the cafeteria.
3. Restricted, intense interests	Interest that is unusual in its intensity or its focus	Knows the names of every metro station and refuses to talk about anything else, or carries a small fan with him wherever he goes.
4. Unusual sensory response	Over- or under-reaction to sounds, textures, light, or pain	Covers his ears at the school bell, refuses to wear the uniform because of how it feels, does not seem hurt when he falls, or stares for a long time at a spinning fan.

Back to Yousef in the opening scene: lining up the cars in a straight row falls under the first form, bursting into tears when one is moved falls under the second, and repeating the commercial's line in its original intonation again belongs to the first. In other words, what the teacher saw in a single morning falls under two forms of Criterion B. Yet this alone is not enough: we still need Criterion A in full, along with the three remaining conditions.

Criterion C: Timing

Symptoms must be present in the **early developmental period**. The manual acknowledges, however, that they may not become fully apparent until social demands exceed the child's capacities. Some children, particularly those with good language and intellectual abilities, do not reveal their difficulties until middle school, when peer relationships grow more complex and their rules less explicit. This is why the specialist always asks the family about the early years, even when the student arrives for evaluation at age 12.

Criterion D: Functional impact

Symptoms must cause **clinically significant impairment** in social, academic, occupational, or other areas of functioning. Having some traits that do not interfere with the child's life is not enough for a diagnosis. Many people have deep interests or prefer routine and lead successful lives, and this is not considered a disorder.

Criterion E: Exclusion

The symptoms must not be better explained by intellectual disability or global developmental delay. To understand this criterion, remember that in a child with intellectual disability all skills develop slowly, social skills included. If the child's social skills are consistent with his overall level of intellectual development, intellectual disability alone explains them. If, however, his social skills are much weaker than his developmental level would predict, he may have both autism and intellectual disability, and the diagnosis records both.

 An example illustrating Criterion E

Two 7-year-olds, each with intellectual abilities equivalent to those of a 4-year-old. The first plays with younger children, laughs along with them, and brings his toy to his mother to show it to her; his interaction, in other words, resembles that of a 4-year-old. This is explained by intellectual disability. The second does not initiate interaction even with younger children and shares his interests with no one, which is less than 4-year-olds typically do. Here, the presence of autism alongside intellectual disability is considered.

9.3

Support levels, specifiers, and comparison with ICD-11

How much support does the student need?

After diagnosis, the specialist specifies the severity level for each domain separately: social communication, and restricted, repetitive behaviors. The yardstick is how much support the student needs in daily life, regardless of the number of symptoms. The manual calls these “severity levels,” but defines each level by the amount of support required, which is why they are commonly referred to as “support levels.” We use that term in this chapter to distinguish them from the severity levels of intellectual disability, which are determined by adaptive behavior.

Table 9.2: Support levels in autism spectrum disorder (adapted from American Psychiatric Association, 2022).

Level	Description	What it looks like in practice
Level 1: Requiring support	Noticeable difficulties in the absence of support	A student who speaks in full sentences but stumbles when starting a conversation, has difficulty making friends, and becomes flustered when moving between activities.
Level 2: Requiring substantial support	Marked difficulties even with support in place	A student who speaks in simple sentences, whose interaction is limited to his own special interests, and whose repetitive behaviors occur often enough for anyone to notice.
Level 3: Requiring very substantial support	Severe deficits affecting most areas of life	A student who speaks very little or not at all, rarely initiates interaction, and for whom a change in routine causes intense distress that is hard to soothe.

A student may be at Level 1 in social communication and at Level 2 in restricted behaviors, so the report states both levels. The level may also change with development and intervention: it describes the current situation and is open to revision.

Accompanying specifiers

The specialist adds to the diagnosis whatever accompanies it, because this changes the student's educational picture considerably. The report states, for example, whether the autism is:

- 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 behavioral disorder, such as attention-deficit/hyperactivity disorder or anxiety.
- With catatonia, meaning motor freezing, holding fixed postures, extreme slowing, or purposeless movements. It is uncommon, but may emerge in adolescence as a sudden decline in movement, speech, and self-care. It calls for urgent medical referral and should not be treated as ordinary “autistic behavior.”

Two students diagnosed with autism, one with accompanying intellectual and language impairment and the other with neither, need entirely different educational plans, even though the name of the diagnosis is the same. Section 9.10 returns to the common co-occurring conditions and how they are assessed.

Comparison with ICD-11

ICD-11 agrees with DSM-5-TR on the two symptom domains (social communication, and restricted and repetitive behavior, including sensory responses) and on onset in the developmental period, but differs from it in ways that affect the report (WHO, 2024):

- **Two specifiers instead of support levels:** the disorder is classified using two specifiers: the presence or absence of a disorder of intellectual development, and the degree of impairment in **functional language**, that is, the child's ability to use language for his needs and for communication: intact or mildly impaired, markedly impaired, or virtually absent. Sara in 9.8 would thus be classified as “without disorder of intellectual development, with impairment of functional language.”
- **Loss of skills:** the classification records whether the child has lost language or social skills he had previously acquired.
- **Descriptions, not checklists:** ICD-11 sets out essential requirements and clinical descriptions, and does not require a fixed number of forms in each domain as DSM-5-TR does.

For the teacher

A medical diagnosis under the DSM is one thing; eligibility for special education services is another. A student may hold a medical diagnosis while the decision about educational services still rests on the disorder's impact on his learning and school performance. Your role is central in both, because you see the student in an environment the physician never sees: among his peers, in transitions between lessons, and in unexpected situations.

9.4 Early red flags

The earlier autism is identified, the earlier intervention begins and the greater the chances of improvement. Since the late 1990s, medical guidelines have specified signs that, when present, call for evaluation without delay (Filipek et al., 1999), and the current guidelines of the American Academy of Pediatrics have reaffirmed them. These guidelines also recommend screening all children with an autism-specific instrument at the 18- and 24-month visits, without waiting for signs to appear, alongside developmental surveillance at every visit (Hyman et al., 2020). The presence of these signs means that waiting is no longer an appropriate option; the diagnosis itself, however, still depends on a comprehensive evaluation.

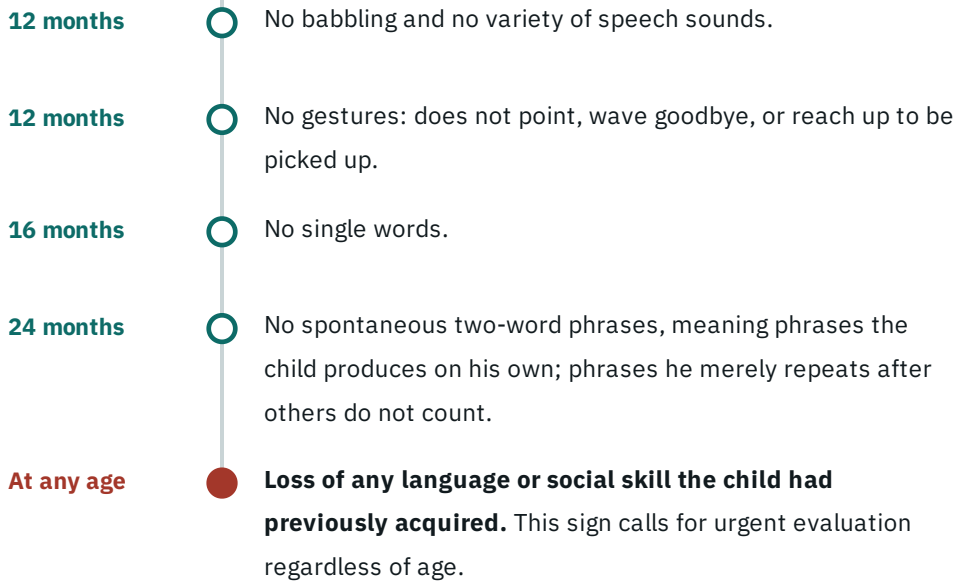


Figure 9.2: Early red flags that call for evaluation without delay, from Filipek et al. (1999); they remain in current guidelines (Hyman et al., 2020).

Why is autism identified later in girls?

Girls are diagnosed with autism far less often than boys. A large systematic review estimates the true ratio at about three boys to every girl, lower than the ratios found in diagnostic records (Loomes et al., 2017). Researchers believe that part of the gap arises because many girls learn to **camouflage** their traits (**Camouflaging**): they watch their female classmates, imitate the way they talk and move, and memorize ready-made phrases for social situations (Hull et al., 2017). Their intense interests may also center on topics that attract little attention, such as animals or novels, and so do not seem “odd” in the way a boy's interest in train timetables might.

As a result, a girl may appear well adjusted at school and then collapse from exhaustion at home. So when a mother says that her daughter “gets very tired after school and needs to be alone for hours,” this is information worth heeding.

9.5

The decision pathway: From observation to judgment

The student passes through five stages before a decision is made, and each stage has its own question and its own instruments. The central idea of this pathway is that its stages are completed in order, so that the judgment is made only after each stage has answered its question. Hearing and vision testing comes at the second stage as a prerequisite for any instrument, because any autism measure administered to a child who does not hear well yields a doubtful result, whatever that result may be.

1 Initial indicators: Is there cause for concern?

A documented observation from the family or teacher: weak interaction, stereotyped behavior, or delayed language.



2 Hearing and vision testing: Are the senses working?

Age-appropriate audiometry with tympanometry, and a vision test. If a deficit appears, it is treated first, and the team then considers whether cause for concern remains.



Normal, or deficit treated and concern remains

3 Screening: Does the student need a comprehensive evaluation?

The Modified Checklist for Autism in Toddlers (**M-CHAT-R/F**) for children aged 16 to 30 months, and the Social Communication Questionnaire (**SCQ**) or rating scales such as the Gilliam Autism Rating Scale (**GARS-3**) for older children.



High score: referral

4 Comprehensive evaluation: What do all the sources of evidence say?

The Autism Diagnostic Interview for developmental history (**ADI-R**), direct observation with the Autism Diagnostic Observation Schedule (**ADOS-2**), the Childhood Autism Rating Scale for severity (**CARS-2**), an intelligence test, a language assessment, a medical and genetic evaluation, and information from the school.



5 Matching against DSM-5-TR criteria

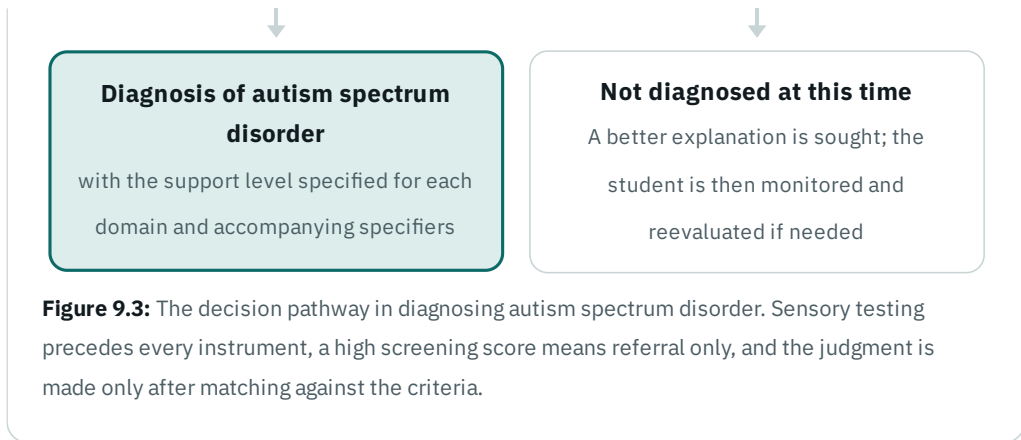
Are all three forms of Criterion A present? At least two forms of Criterion B? Are early onset, clear impact, and the absence of a better explanation established?



Does the evidence converge, and are all five criteria met?

Yes

No



Stage 1: Initial indicators

The story usually begins with an observation from the family or a teacher. Here lies the teacher's most important role, because the teacher sees the student every day among peers, in situations the physician never sees in the clinic. An observation helps the team, however, only if it is **documented and objective**. Compare these two observations about Yousef:

An observation that does not help the team

“Yousef is odd and doesn’t like his classmates, and I think he has autism.”

An observation the team can build on

“Over two weeks, Yousef did not once initiate conversation with a classmate. I called his name from two meters away ten times, and he did not turn on seven of them, yet he turned immediately at the sound of a cookie box being opened. He lined up the toy cars in a straight row on 8 of 10 free-play days.”

The first observation is a personal judgment; it even contains a diagnosis, which lies outside the teacher's remit. The second describes a specific behavior, in a specific context, with the number of times it occurred. It also draws attention to something important: Yousef hears the biscuit packet, so his failure to respond to his name is probably not due to hearing loss, although a hearing test remains necessary. A record such as the following helps the teacher document what she sees:

Table 9.3: A sample observation record for teachers to use before referral, with two entries from Yousef's record. It may be copied for classroom use.

Date and time	Situation	What happened before the behavior	Behavior as I saw it	What happened after
Sunday 8:40	Morning circle	The teacher began the morning song	Covered his ears with his hands, lowered his head, and did not join in	Calmed down when the song ended
Sunday 10:15	Free play	A classmate took a car from his row	Screamed and cried for three minutes, then put the car back in its place	Went back to lining up the cars alone

The record captures what came before and after the behavior, because context is part of the evidence.

Stage 2: Hearing and vision testing

Before any autism instrument is used, the question is: Does the child hear and see well? Not turning to his name, delayed speech, and limited interaction in noisy settings can all arise from hearing loss alone. A child who is administered an observation schedule while unable to hear the specialist clearly may appear less interactive than he really is, and the result loses its

validity. Passing a newborn hearing screening is not enough, since some types of hearing loss appear later or fluctuate with middle ear infections. The team therefore requests a recent, age-appropriate hearing assessment with tympanometry, together with a vision test.

The kindergarten referred Yousef for a hearing test first. His hearing proved normal in both ears, his tympanometry was normal, and his vision test was clear. Only then did screening become meaningful.

Stage 3: Screening

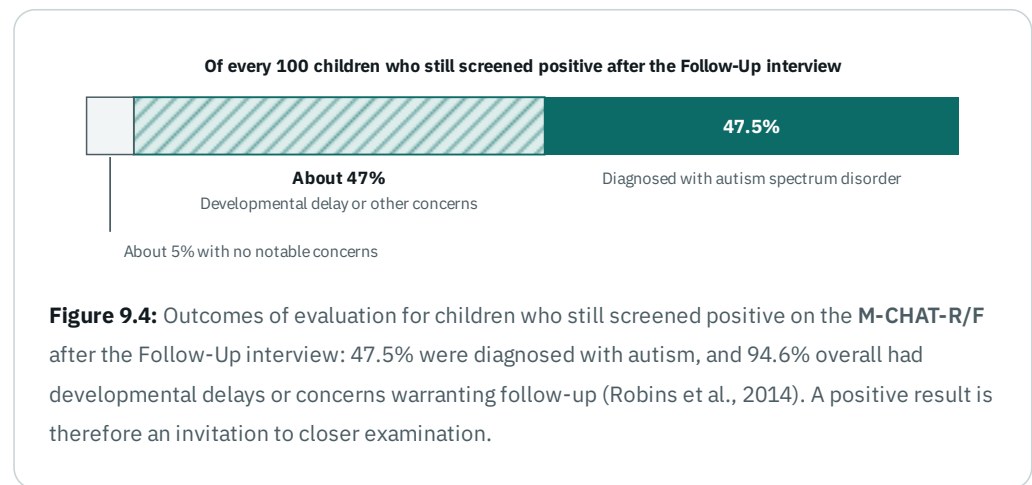
Screening is a sorting tool; diagnosis is a later stage that requires broader evidence. The function of screening is to determine who needs a more in-depth evaluation, so that not every quiet child is referred and no child who genuinely needs evaluation is overlooked.

An analogy that clarifies the difference

Screening is like the metal detector at an airport. If it beeps, the traveler needs a hand search to settle the matter. A high screening score works the same way: it means “look more closely,” not “he has autism.”

The accuracy of a screening tool is measured by two concepts: **sensitivity (Sensitivity)**, the proportion of those who actually have the disorder whom the tool detects, and **specificity (Specificity)**, the proportion of those without the disorder whom the tool correctly rules out. Chapter 2 (Section 2.6, Table 2.5) presented a worked example showing that a tool with 85% sensitivity and 95% specificity, applied to 1,000 children among whom the disorder has a prevalence of 2%, yields positive results of which roughly three quarters are false. The lesson is that the value of a positive result depends as much on the proportion of those screened who have the disorder as on the tool itself.

Real-world data tell the same story. In the validation study of the **M-CHAT-R/F**, administered to more than 16,000 children at primary care visits, fewer than half of those who still screened positive after the Follow-Up interview were diagnosed with autism. Most of the rest, however, had developmental delays or other concerns warranting intervention, so their results were not “false alarms” in the full sense (Robins et al., 2014):



Yousef is 5 and thus past the age range of the **M-CHAT-R/F**. His mother therefore completed the Lifetime form of the Social Communication Questionnaire (see its profile in 9.6). He scored 21, above the cut-off score of 15, and was referred to a diagnostic center together with his teacher's record.

Stage 4: Comprehensive evaluation

This stage is carried out by a multidisciplinary team that may include a pediatrician or psychiatrist, a psychologist, a speech-language pathologist, and a special education specialist. The team gathers evidence from three independent sources:

1. **Developmental history** from the family, through a structured interview such as the **Autism Diagnostic Interview–Revised, ADI-R**: When did the symptoms begin? What was the child like at age four?

2. **Standardized direct observation** of the child, using an instrument such as the **Autism Diagnostic Observation Schedule, ADOS-2**: How does he interact now with an unfamiliar person in situations designed to elicit social behavior?
3. **Supplementary assessments** that rule out other explanations and reveal co-occurring conditions: an intelligence test to establish intellectual ability, a language assessment, and a medical evaluation that asks about seizures, sleep, feeding, and gastrointestinal problems. The American Academy of Pediatrics recommends offering genetic testing to every child diagnosed with autism, beginning with chromosomal microarray and testing for fragile X syndrome (Hyman et al., 2020).

Information from the school is added to these: the teacher's ratings on the rating scale, her observation records, and samples of the student's work.

In Yousef's case, the specialist interviewed his mother using the diagnostic interview, and his scores exceeded the cut-off scores in all three domains; his mother reported that he had not pointed or waved before the age of two. He was administered Module 1 of the observation schedule, because he does not use spontaneous phrases and most of his speech repeats what he has heard; the classification was "autism." His nonverbal ability was 88, in the average range.

Stage 5: Matching against the criteria

The team lays out all the evidence and asks about each criterion in turn: Is it met? What is the evidence for it? From which source did that evidence come? If the sources converge on all five criteria being met, the diagnosis is made, with the support level specified. If the sources conflict, or if a better explanation such as hearing loss emerges, the judgment is suspended and that explanation is investigated.

Yousef's evidence converged: the teacher's record, his mother's report, and direct observation. He was diagnosed with autism spectrum disorder without accompanying intellectual impairment, with accompanying language

impairment, at support Level 2 in social communication and Level 1 in restricted behaviors, and he was referred for genetic evaluation. In this way the first morning observation, once documented and followed by hearing testing, screening, and evaluation, became a decision grounded in evidence.

☆ **A golden rule**

A decision not to diagnose may be the most accurate outcome of an evaluation. A student misdiagnosed with autism loses the services he actually needs, and his family bears the burden of a diagnosis that does not fit him.

9.6 **Instrument profiles**

In this section we present six of the most widely used instruments in the diagnosis and identification of autism. They fall into three families with different functions:

Screening tools

Sort out the children who need a more in-depth evaluation. Quick, and do not require advanced qualifications.

M-CHAT-R/F · SCQ

Rating scales

Someone who knows the child rates how strongly the traits appear, yielding a severity score.

CARS-2 · GARS-3

Diagnostic instruments

Administered by a specialist with formal training; regarded as the primary reference in diagnosis.

ADI-R · ADOS-2

Each instrument has a profile following the book's standard template: its underlying idea, what it actually looks like, and a scene from its administration, followed by an information card with twelve fields (purpose, ages, edition and year, publisher, qualification level, administration time, score types, cut-off scores, reliability, classification accuracy, norming year,

and Arabic version), then how its results are interpreted, and finally its limitations. Where we do not know a figure from a source we trust, we say so and refer the reader to the instrument's manual rather than estimating it.

 A caution on test security and Arabic versions

This book describes instruments and explains how to administer and interpret them, but it does not publish their items or reproduce their record forms. The items are the property of the publishers, and publishing them undermines an instrument's validity when examinees see them in advance. The drawings representing forms in this chapter illustrate only the layout of the page; their gray lines do not represent real items.

Many instruments also circulate in unlicensed translations without local norms. Each profile therefore states the status of the Arabic version, and readers should verify a version's license and norms before relying on it.

M-CHAT-R/F Modified Checklist for Autism in Toddlers, Revised, with Follow-Up

Screening tool

The idea

This checklist was designed to be administered to **all** children at routine health care visits, including those who raise no concern at all. The aim is to identify children whom the family may have missed, at the age when intervention is most beneficial (Robins et al., 2014).

What it looks like

A single page of 20 simple questions that parents answer yes or no. They ask about everyday behaviors every parent knows, such as pointing with a finger, looking at what others point to, and pretend play. The checklist comes with a **Follow-Up interview** guide that the professional uses for the questions whose answers indicated risk, asking the family for real-life examples before scoring the answer.

1

2

3

	Yes	No
1	☐	☐
2	☐	☐
3	☐	☐
4	☐	☐
5	☐	☐
6	☐	☐
7	☐	☐
8	☐	☐
...	☐	☐

4

1

The instrument name, the child's details, and age in months.

2

Brief instructions for parents: answer according to your child's usual behavior.

3

Twenty questions, each with a Yes box and a No box beside it.

4

A copyright line at the foot of the page, which the authors require to be retained whenever the form is printed.

Figure 9.5: An original illustration of the checklist's page layout. The gray lines do not represent the actual questions; the original form can be downloaded from the official website.

A scene from administration

At a primary care center, the nurse hands the checklist to the mother of Raghad, a 20-month-old, to complete while they wait for the doctor. She finishes it in five minutes. The doctor tallies the answers that signal risk and counts four, so he sits down with the mother and goes through each one in detail: “When you said she doesn't point, does she point if she wants juice from the shelf? Does she point to a cat in the street to show it to you?” After the follow-up, three at-risk answers remain, and the doctor refers Raghad for a diagnostic evaluation.

Table 9.4: M-CHAT-R/F information card.

Purpose	Early screening for possible autism, ahead of diagnosis
Ages	16 to 30 months
Edition and year	The revised version with Follow-Up interview; its validation study was published in 2014
Publisher	Its authors; it can be downloaded free of charge from their official website for clinical, educational and research use, under conditions they set
Qualification level	Completed by parents; the follow-up interview is conducted by a physician, nurse or specialist trained in it; no psychological assessment license required
Time	About 5 minutes for the checklist and 5 to 10 minutes for the follow-up
Score types	The number of at-risk answers, from 0 to 20
Cutoff scores	3 and 8, then 2 after the follow-up (Table 9.5)
Reliability	The instrument is not interpreted against norms, and its published studies focus on classification accuracy rather than reliability coefficients
Classification accuracy	Of the children who still screened positive after the follow-up, 47.5% were diagnosed with autism, and 94.6% had developmental delays or concerns (Robins et al., 2014; Figure 9.4)
Year of norm collection	It has no age norms. The cut-off scores derive from the validation study in US primary care

Arabic version	The first version of the checklist was studied in nine Arab countries with 228 children, 122 of whom screened positive; sensitivity was 0.86, specificity 0.80, and positive predictive value 0.88 (Seif Eldin et al., 2008). This high value reflects a sample in which more than half screened positive, and it can be expected to drop in universal screening. The official website lists the approved translations of the revised version, but at the time of writing we know of no published Arabic standardization study for it
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How are the results interpreted?

The at-risk answers are summed and read in three ranges:

Table 9.5: M-CHAT-R/F score ranges and the action for each.

Score	Risk level	Action
0 to 2	Low	No action for now; continue monitoring at future visits. If the child is younger than 24 months, rescreen after the second birthday.
3 to 7	Average	Conduct the Follow-Up interview. If a score of 2 or more remains afterward, refer the child for evaluation.
8 to 20	High	Refer directly for diagnostic evaluation and early intervention; the Follow-Up interview may be skipped.

Limitations

It may miss some children, particularly those whose symptoms are mild or emerge later. A high result signals the need for a fuller evaluation, as Figure 9.4 shows. Reproducing the checklist in a book or on a website requires the authors' permission.

SCQ Social Communication Questionnaire

Screening tool

The idea

The **M-CHAT-R/F** stops at 30 months. What, then, of a five-year-old, or a ten-year-old student whose teacher is worried? This questionnaire was designed to carry the questions of the diagnostic interview with the family, in condensed form, onto a form a parent can complete in minutes, sorting out who needs a comprehensive evaluation (Rutter, Bailey, et al., 2003).

What it looks like

Forty yes/no questions in two forms. The **Lifetime** form asks about the child's entire history, and some items ask specifically about ages four to five; this is the form used for screening and referral. The **Current** form asks about the past three months and is useful for monitoring. The first question establishes whether the child speaks in phrases, so the language items are dropped for a child who does not.

A scene from administration

At an early intervention center, the specialist gives Yousef's mother the Lifetime form and asks her to answer according to what she genuinely remembers of his behavior. The mother pauses at a question about pointing at things to show them to others, then says, "He never did that." The specialist tallies the relevant answers: the score is 21. She notes in his file that it is above the cut-off and refers him for a comprehensive evaluation, without offering the mother "autism" as a verdict.

Table 9.6: SCQ information card.

Purpose	Screening for the social communication traits associated with autism in those past the age range of the toddler checklist
Ages	4 years and older, provided mental age exceeds 2 years

Edition and year	2003, with Lifetime and Current forms
Publisher	WPS
Qualification level	Completed by a parent; scored and interpreted by a trained professional in accordance with the publisher's requirements
Time	Under 10 minutes to complete
Score types	A raw total score from 0 to 39, since the first question is not scored
Cutoff scores	15 or above on the Lifetime form warrants referral for a comprehensive evaluation
Reliability	High in the development studies; see the manual for figures
Classification accuracy	Better in clinical samples of older children and lower in young children and in community screening, so a score below 15 does not rule out the disorder when concerns persist
Year of norm collection	It has no age norms. The cut-off score derives from British diagnostic samples in the late 1990s
Arabic version	At the time of writing we know of no published standardized Arabic version

How are the results interpreted?

The total score is read against the cut-off alone: above it, refer; below it, no referral for now unless other strong concerns exist. The score is not used to estimate severity or to determine the level of support.

Limitations

It depends on the parent's memory and understanding of the questions, and an anxious or an optimistic parent may answer in keeping with that anxiety or optimism. It misses many girls who camouflage their traits, as well as students

whose difficulties surface only in middle school. A closely related instrument is the **Social Responsiveness Scale, Second Edition (SRS-2)**, completed by a parent, a teacher or the individual, from age two and a half to adulthood. It has 65 items and yields a T-score (a standard score with a mean of 50 and a standard deviation of 10): 59 or below is within normal limits, 60 to 65 mild, 66 to 75 moderate, and 76 or above severe (Constantino & Gruber, 2012). Its advantage is that it measures traits on a continuum, which makes it well suited to comparing home and school ratings.

CARS-2 Childhood Autism Rating Scale, Second Edition Rating scale

The idea

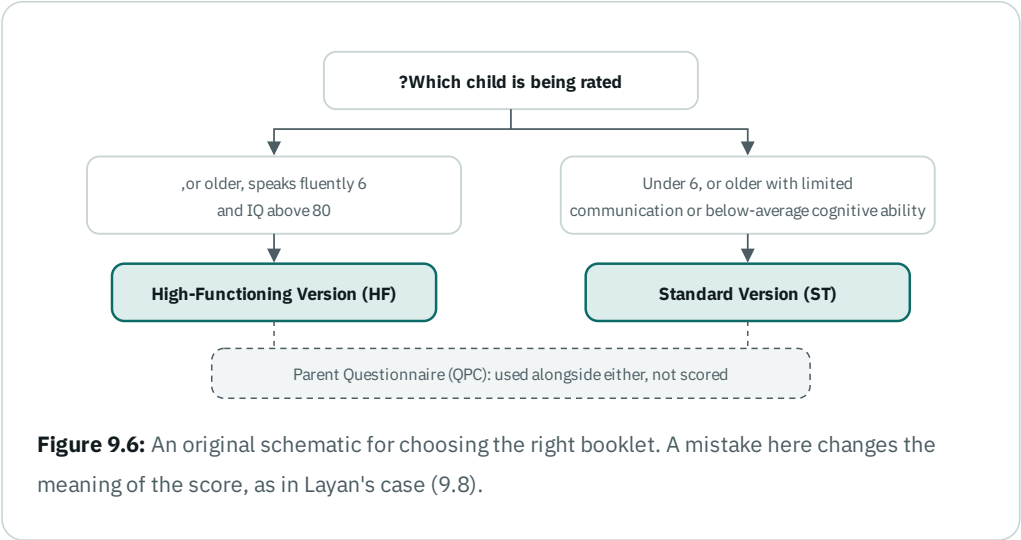
Once the specialist has observed the child and gathered information about him, an organized way is needed to turn those impressions into numbers that can be compared and tracked. That is what this scale offers: fifteen domains, in each of which the specialist rates how far the child's behavior departs from what is expected of same-age peers (Schopler et al., 2010).

What it looks like

An examiner's manual and three booklets, chosen according to the child:

- **Standard Version ST:** for children under 6, or older children with marked communication difficulties or below-average cognitive ability.
- **High-Functioning Version HF:** for fluent speakers aged 6 or older with an IQ above 80.
- **Questionnaire for Parents or Caregivers QPC:** completed by the parents and used by the specialist to inform the ratings; it is not scored.

The Standard Version's domains include relating to people, imitation, emotional response, body use, object use, adaptation to change, visual and listening response, verbal and nonverbal communication, and activity level.



A scene from administration

The specialist observes Hisham, who is five, for about an hour as he plays and responds to simple activities, and reads through his mother's questionnaire. He then takes the rating booklet and gives each domain a score from 1 to 4. In “adaptation to change,” for instance, he noted that Hisham cried hard when his toy train was taken away so that he could be given another toy, and kept crying for several minutes despite efforts to soothe him; he rated it 3, moderately abnormal. In “imitation,” Hisham copied most simple movements after they were repeated, so he rated it 2.5.

Table 9.7: CARS-2 information card.

Purpose	Rating the severity of autistic traits and supporting diagnosis
Ages	2 years and older
Edition and year	Second, 2010

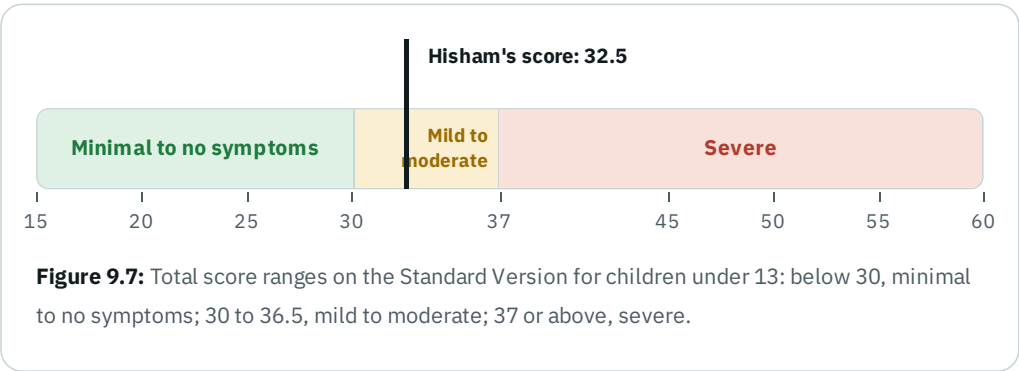
Publisher	WPS
Qualification level	A specialist trained in autism assessment, after observing the child and gathering information about the child
Time	5 to 10 minutes for the rating itself, after observation
Score types	Each domain is rated from 1 (age-appropriate) to 4 (severely abnormal), with half-points allowed, so the raw total ranges from 15 to 60. The manual provides a T-score and a percentile rank relative to a sample of individuals with autism. The percentile rank is the percentage of the comparison sample who scored lower than the child; a rank of 84 means the child's score exceeds those of 84% of that sample
Cutoff scores	On the Standard Version for children under 13: 30 and 37 (Figure 9.7). The High-Functioning Version and those aged 13 or older have other cut-off scores given in the manual
Reliability	The manual reports high internal consistency and interrater agreement; see it for figures
Classification accuracy	The manual reports good accuracy at the cut-off scores. Results should be read with caution in severe intellectual disability, because some domains are affected by overall developmental level
Year of norm collection	The Standard Version retains the items and scoring of the first edition (1988), and the autism sample from which the T-scores are calculated was gathered shortly before the second edition appeared

Arabic version

An Arabic edition was published by the American University of Beirut Press, prepared by Leila Akoury-Dirani and Mayssam Alameddine (Akoury-Dirani & Alameddine, 2016 [Arabic]); we found no published description of its sample. An Arabic version was studied with 301 children aged 2 to 12, yielding an internal consistency of 0.79, and factor analysis supported a three-factor, 14-item model (Alotaibi & Alotaibi, 2021). An adapted Iraqi version of the Standard Version, studied with 286 children in Baghdad, has also been published (Al-Shibly et al., 2025). We know of no published Arabic norms for the T-scores

How are the results interpreted?

The specialist sums the scores of the fifteen domains and then reads the total on the following scale. If Hisham's total is 32.5, his score falls in the “mild to moderate” range.



In the report, the specialist writes something like: “The total score on the Standard Version indicates mild to moderate autistic traits,” and then links it to the rest of the evidence. He does not write “he has mild autism,” because the scale rates severity; it does not issue the diagnosis.

Its limits

The High-Functioning Version, and those aged 13 or older, have other cut-off scores given in the manual. Using the wrong version can do a student an injustice: a fluent adolescent may score low on the Standard Version because its items do not capture his subtler difficulties. Publisher's page

GARS-3 Gilliam Autism Rating Scale, Third Edition

Rating scale

The idea

At home and at school, a child behaves in ways that may never surface in a short clinic session. That is why this scale was designed to be completed by someone who knows the student well and sees him every day: a parent or the **teacher**. It is among the instruments teachers are most likely to be asked to complete (Gilliam, 2014).

What it looks like

An examiner's manual and a form that combines the items with the summary page. The form contains 56 statements describing behaviors; for each, the respondent rates how well it applies to the student on a four-point scale, from "not at all like the individual" to "very much like the individual." (The previous edition asked how often the behavior was observed, so mind the difference if you come across an old form.) The items are distributed across six subscales: Restrictive/Repetitive Behaviors, Social Interaction, Social Communication, Emotional Responses, Cognitive Style, and Maladaptive Speech.

A scene from administration

The school psychologist sends the form to the second-grade teacher and asks him to rate Omar's behavior as he has seen it at school over recent weeks. The teacher sits down for ten minutes, reading each statement and recalling actual

situations before choosing. Omar's mother completes the same form about his behavior at home. The psychologist then converts the raw scores into **scaled scores (Scaled scores)**, standard scores with a mean of 10 and a standard deviation of 3, and compares the two ratings.

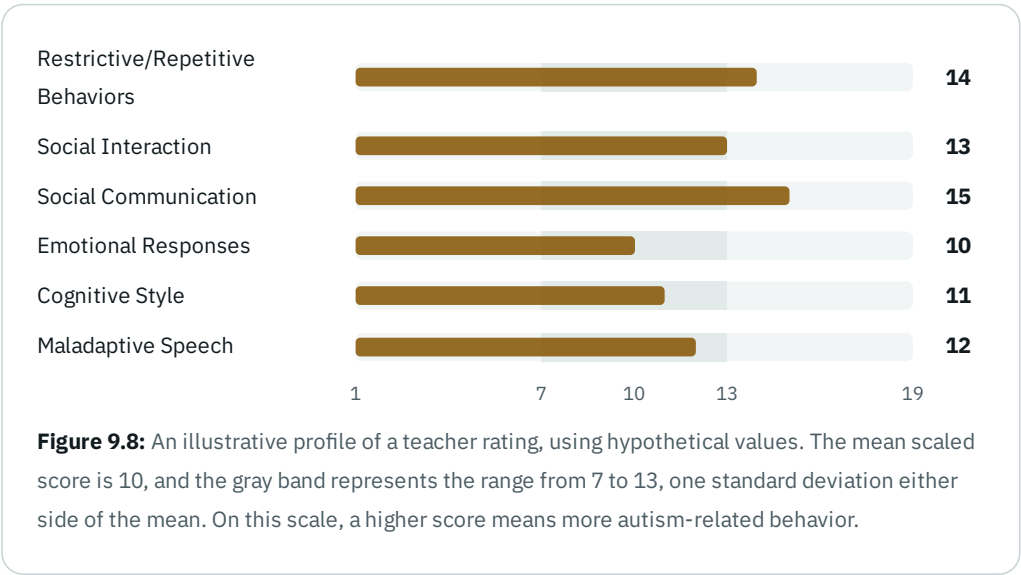


Table 9.8: GARS-3 information card.

Purpose	Estimating the probability and severity of autism from the observations of someone who sees the student daily
Ages	3 to 22 years
Edition and year	Third, 2014
Publisher	PRO-ED
Qualification level	Completed by parents, a teacher or a specialist; interpreted by a qualified specialist
Time	5 to 10 minutes

Score types	Subscale scaled scores with a mean of 10, and an Autism Index with a mean of 100 and a standard deviation of 15
Cutoff scores	The probability of autism and the severity level are read from the manual's tables according to the Index score
Reliability	The manual reports high internal consistency for the Index and the subscales
Classification accuracy	The manual reports high accuracy, but independent studies of the first edition found that it placed a large share of children with a rigorously confirmed autism diagnosis in the lower probability categories (South et al., 2002)
Year of norm collection	A US reference sample of individuals with autism; see the manual for the year of data collection and sample size
Arabic version	An Arabic version was studied in Saudi Arabia with 178 participants aged 3 to 22 from educational and clinical settings, with a Cronbach's alpha of 0.971 (Alasmari et al., 2024a, 2024b). We know of no published Saudi norms for the Index, so scores are read against the US norms

How are the results interpreted?

The specialist chooses between two indexes: one built from four subscales for individuals whose speech is absent or very limited, and one built from all six subscales for those with functional speech. The reason is that the remaining two subscales revolve around speech, so rating them makes no sense for a child who does not talk. The specialist then reads from the manual's tables the probability of autism and the severity level that correspond to the Index score.

Its limits

The scale reflects what the respondent perceives of the behavior. A teacher with thirty students may notice different things from a mother, and an anxious family may exaggerate or play things down. A disagreement between the two

ratings is therefore important information in its own right, and the scale alone is not enough for diagnosis. Independent studies have also clearly criticized the diagnostic accuracy of this scale series, particularly its tendency to underestimate the probability of autism in children who have been diagnosed (South et al., 2002). The high internal consistency of the Arabic version does not answer this question: consistency shows that the items measure a single thing, whereas accuracy in separating those with autism from those with look-alike conditions requires diagnostic validity studies. The scale is thus used to convey what the teacher and the family see, while judgments of probability are left to the rest of the evidence. Publisher's page

 For the teacher: How do you complete a rating scale honestly?

1. Read each statement and bring to mind actual situations you have seen for yourself.
2. Rate what you have personally observed during the period the manual specifies.
3. If you have had no opportunity to observe a particular behavior, tell the specialist rather than guessing.
4. Do not try to “help” the student qualify for services by inflating the rating, or to “protect” him from a diagnosis by lowering it. An honest rating is what serves him.

The idea

Autism is a developmental disorder, meaning its roots go back to the earliest years, and no one knows those years like the parents. Yet asking them a general question, such as “Was your child sociable?”, does not yield precise information; most parents will say yes. That is why this interview is structured: it asks about specific behaviors and requests real examples for every answer (Rutter, Le Couteur, et al., 2003).

What it looks like

An interview booklet from which the specialist reads 93 questions in a set order, recording and coding the answers, then transferring the codes to an algorithm form that computes scores in each domain. Nothing is handed to the family to fill in; the whole interview is a conversation.

A scene from administration

Jumana's mother sits with the specialist for nearly two hours. The specialist asks, “When Jumana was between four and five, if she found something she liked, what would she do? Would she bring it to show you?” The mother answers, “She'd play with it by herself in the corner.” The specialist asks, “Can you remember a particular time?” And so it goes with every question, because the interview is after the actual behavior, not the family's opinion of it.

Table 9.9: ADI-R information card.

Purpose	A diagnostic instrument that gathers the developmental history through a structured interview with the family
Ages	Individuals with a mental age above 2 years
Edition and year	Revised, 2003
Publisher	WPS
Qualification level	A specialist with formal training in administering and coding the interview

Time	Roughly an hour and a half to two and a half hours
Score types	Algorithm scores for each domain: reciprocal social interaction, communication, and restricted and repetitive behaviors, plus age of symptom onset. It does not yield standard scores
Cutoff scores	Social interaction 10; communication 8 for verbal and 7 for nonverbal individuals; restricted behaviors 3; with signs evident at or before 36 months
Reliability	The manual reports high agreement among trained interviewers
Classification accuracy	Good in clinical samples, and lower in very young children and those with very low mental age
Year of norm collection	It has no age norms. The algorithm is based on diagnostic samples
Arabic version	At the time of writing we know of no published standardized Arabic version

How are the results interpreted?

Each domain score is compared with that domain's cut-off on the algorithm form (Table 9.9). The result is consistent with autism when scores exceed the cut-offs in all three domains and signs of the disorder were evident at or before 36 months.

Limitations

It is long and time-consuming, and it depends on the accuracy of the parents' memory and their candor. It can be hard to administer when the child has been in the care of people other than the parents from an early age, or when the family cannot recall the details of the early years.

ADOS-2 Autism Diagnostic Observation Schedule, Second Edition

Diagnostic instrument

The idea

If the interview just described looks at the past through the parents' eyes, this schedule looks at the present directly through the specialist's. It goes beyond watching the child play to creating carefully designed situations that invite interaction and communication, and then recording how the child responds. That is why it is described as the reference standard in diagnostic observation (Lord et al., 2012).

What it looks like

A large wheeled plastic case containing the manual, a protocol booklet for each module, and more than 100 stimulus materials: blocks, noise-making toys, soap bubbles, wordless picture books, and dolls and props for a pretend birthday party. The stimulus materials are sold only as part of the complete kit.

Each module has a protocol booklet in which the specialist records observations during the session and codes them afterward; at the end is the algorithm page, where the codes become a score and a classification. Figure 9.9 summarizes this path:

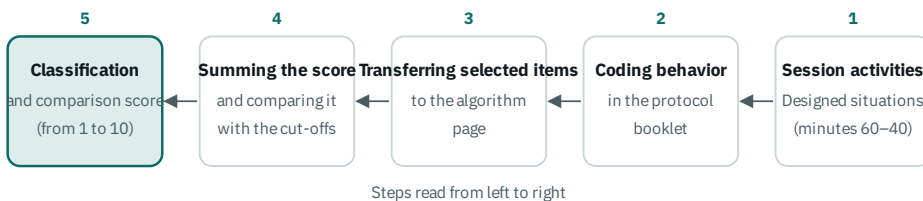
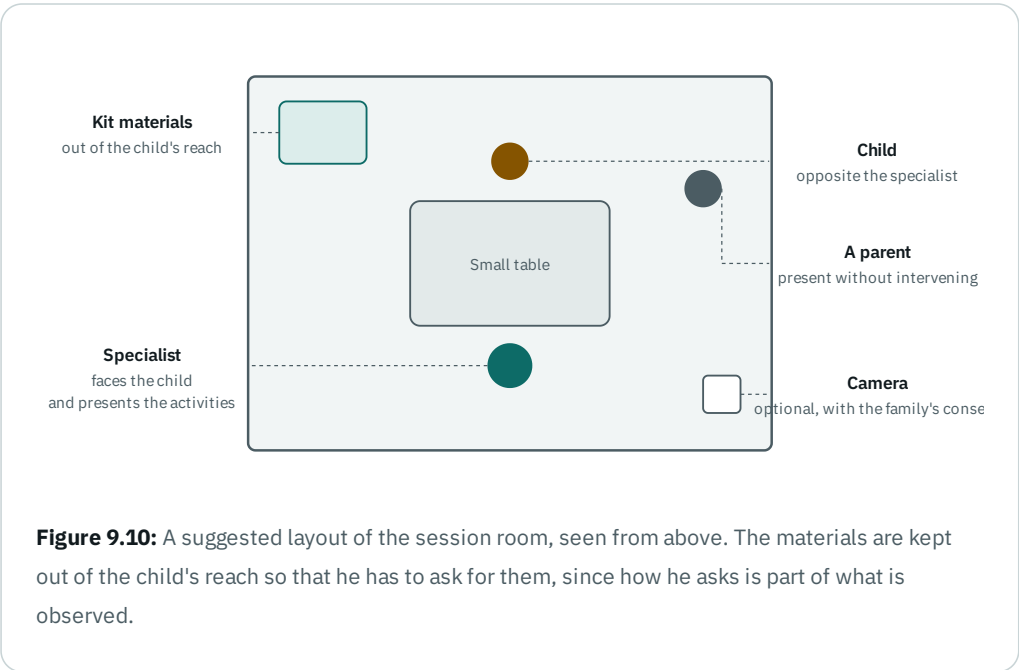


Figure 9.9: An original schematic of the path from session to classification in the observation schedule. Selected items from those coded, depending on the module, are carried over to the algorithm, and the comparison score is available only in Modules 1 to 3.

How is the session room arranged?



The five modules

From the schedule, the specialist selects **a single module** suited to the child's language level and age, and the choice begins with language before age:

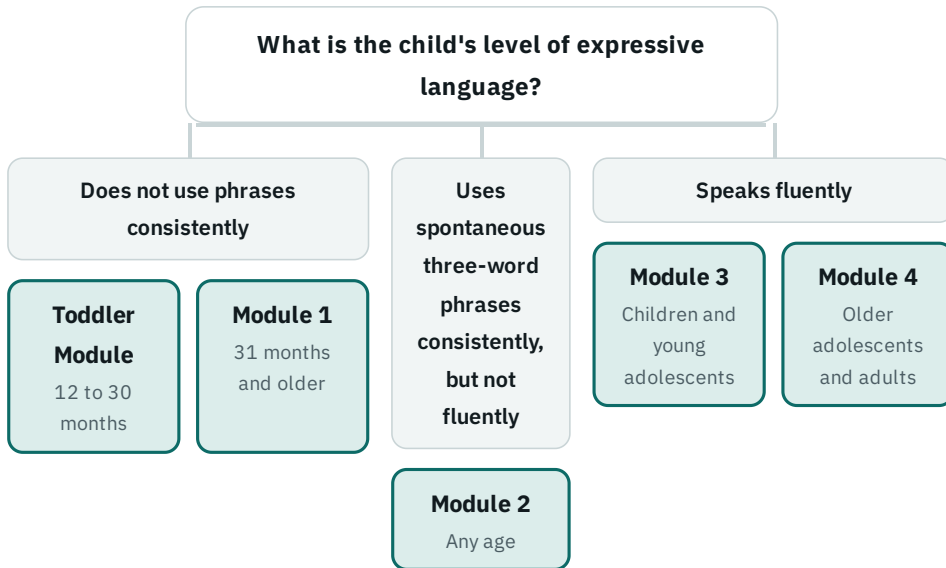


Figure 9.11: Choosing the right module. A ten-year-old who does not use phrases consistently is given Module 1 despite his age. Phrases here means phrases of three or more words that the child generates and uses consistently; memorized or echoed phrases do not count. The specialist may switch to another module if the child's language level turns out to differ from what was expected.

Scene from administration: Module 3

Ziyad, a fluent nine-year-old, walks into a room with a table and two chairs. The specialist starts with a simple construction task, then asks him to describe a picture crowded with detail, and the two of them leaf through a wordless picture book together while Ziyad tells the story. Midway through the session, the conversation turns to friends: “Do you have friends? What makes someone your friend?” Then to feelings: “What makes you happy? What bothers you?”

To Ziyad, it all feels like ordinary conversation and play. But the specialist is watching closely: Does he look at him while talking? Does he share what catches his attention, or talk only about himself? Does he understand how the characters in the story feel? Does he ask the specialist about himself, even once? Straight after the session, the specialist codes the behaviors in the protocol booklet and then transfers the codes to the algorithm page.

Table 9.10: ADOS-2 information card.

Purpose	A diagnostic instrument based on standardized direct observation
Ages	12 months to adulthood, in five modules
Edition and year	Second, 2012
Publisher	WPS
Qualification level	A specialist with formal training in the instrument; the publisher restricts purchase to those with advanced qualifications
Time	40 to 60 minutes
Score types	Item codes, a total algorithm score, a classification, a comparison score from 1 to 10 in Modules 1 to 3, and ranges of concern in the Toddler Module
Cutoff scores	They vary by module, and by age and language level within a module, and are read from the algorithm page
Reliability	The manual reports good agreement among trained coders
Classification accuracy	Good in clinical samples; specificity drops with severe intellectual disability and in very young children
Year of norm collection	It has no age norms. The algorithms and comparison score are based on US diagnostic samples
Arabic version	At the time of writing, we know of no publisher-approved Arabic translation and no published standardized Arabic version

How are the results interpreted?

In Modules 1 to 4, the algorithm score is calculated and compared with cut-offs, yielding one of three classifications: “autism”; “autism spectrum,” which indicates milder symptoms; or “non-spectrum.” Modules 1 to 3 also provide a

“comparison score” from 1 to 10, which shows the level of symptoms relative to children diagnosed with autism of the same age and language level and is useful for tracking a child over time. The Toddler Module, by contrast, gives “ranges of concern” rather than a classification, because a formal classification may not be appropriate at such an early age.

Its limits

It describes the child's behavior in a single session with a stranger. A tired or frightened child may appear worse than he really is, and some highly able children may perform well in a short, structured situation with an understanding adult. It is therefore always supplemented by the developmental history and information from school. Publisher's page

For the teacher: Where do you fit in with these instruments?

You will often be asked to complete the **GARS-3** or the **SRS-2**; the family may be asked to fill in the **SCQ**; you may be asked for information the specialist draws on for the **CARS-2**; and you may take part in screening young children in early intervention programs. The **ADI-R** and **ADOS-2**, however, are administered by a trained specialist; your role is to read their results in the report and understand what they mean for teaching the student.

9.7 How do you read a diagnostic report?

What usually reaches the teacher is a report several pages long, dense with numbers and terminology. The skill required is knowing where to look and what to extract, more than memorizing cut-off scores. Here is a hypothetical excerpt from Ziyad's report, with annotations showing how to read it:

Psychoeducational Evaluation Report

Name: (withheld) · Age: 9 years, 3 months

Module 3 of the Autism Diagnostic Observation Schedule¹ was administered because Ziyad speaks fluently in complex sentences. Ziyad was cooperative and gave correct, detailed answers to direct questions, but he rarely commented on the examiner's remarks or asked about the examiner, and for most of the conversation he returned to the topic of airplanes². In the picture-story narration, he described the events accurately but mentioned the characters' feelings only when asked about them.

The total score fell within the "autism spectrum" classification, with a comparison score of 6 out of 10 in this session³. These results are consistent with the diagnostic interview with the family and with the teacher's rating on the Gilliam scale.

On the basis of the evidence as a whole, the criteria for autism spectrum disorder under DSM-5-TR are met, without accompanying intellectual impairment and without accompanying language impairment, at support Level 1 in both domains⁴. Direct instruction in reciprocal conversation skills is

- 1 Which instrument, and why this module?** The choice of Module 3 tells you that Ziyad's expressive language is good.
- 2 The behavioral description** is the most valuable part of the report for the teacher, because it pinpoints what needs teaching: initiating, sharing in conversation, and understanding feelings.
- 3 The classification and comparison score** describe the severity of symptoms in the session; on their own, they do not constitute the diagnosis.
- 4 The decision statement** brings all the evidence together and states the specifiers and the level of support. It is what the service decision rests on.

recommended, along with advance preparation before unfamiliar group activities.

Figure 9.12: A hypothetical excerpt from a diagnostic report, worded by the author, with annotations showing what the teacher takes from each part.

When you finish reading, ask yourself three questions: What strengths does the report mention that I can build on? What difficulties does it describe that show up in my classroom? And which recommendations can I put into practice tomorrow?

9.8 When is the judgment made? Three cases

Having presented the criteria and the instruments, we are left with the hardest question: how does all of this come together in a single decision? In this section we follow three cases from the moment of referral to the decision. In the first, the judgment is reached; in the second, it is not; and in the third, autism nearly escapes notice because the student's giftedness masks it.

All three cases are hypothetical, written for teaching purposes; their figures are illustrative and do not represent real children.

Case one: Sara, 4 years 6 months

When the evidence converges

The story: Sara started kindergarten at the beginning of the year. Two months in, her teacher noticed that she spent free playtime alone, lining up colored blocks in the same order every day. When another girl tried to join her, Sara pushed her away and screamed. The teacher also noticed that she cried hard whenever the order of activities changed, and that she covered her ears whenever songs were played.

What the teacher did: Rather than relying on a general impression, she kept dated notes for two weeks in a log similar to Table 9.3. She then spoke with the mother, who said that Sara had been late to talk and began using short phrases only after age three; today she uses spontaneous three-word phrases consistently, though her speech is not fluent. The mother added that Sara pulls her mother's hand toward what she wants instead of pointing at it. The teacher passed her notes to the kindergarten administration, and Sara was referred first for hearing and vision screening and then to a diagnostic center.

The evidence the team gathered:

Table 9.11: Evidence in Sara's case.

Source	Result	What it means
Hearing and vision screening (before any instrument)	Both normal	Her lack of response is not due to the senses, so the autism instruments become meaningful
GARS-3, teacher rating	High Autism Index, high probability	The kindergarten sees clear traits
GARS-3, mother's rating	Also a high Index	Home sees the same picture, so the traits are not tied to one setting
CARS-2-ST	34	Mild to moderate traits
ADI-R with the mother	Exceeded the cut-offs in all three domains, with signs before 36 months	The developmental history confirms that the symptoms are longstanding

Source	Result	What it means
ADOS-2, Module 2	“Autism spectrum” classification	Module 2 was chosen because she uses spontaneous three-word phrases consistently but not fluently (Figure 9.11). Direct observation confirms the traits at present
Nonverbal intelligence test	92	Her cognitive ability is average, so intellectual disability does not explain her symptoms

A ✓ All three manifestations	B ✓ Three of four manifestations	C ✓ Before age three	D ✓ Impairs participation	E ✓ Average intelligence
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How the team matched the evidence to the criteria: Criterion A was met in all three of its manifestations: she does not share her interests with anyone, she neither points nor waves, and she does not play with peers. Three manifestations of Criterion B were met: lining up blocks in a fixed pattern, intense distress at changes in routine, and covering her ears during songs. The mother reported signs before age three, the symptoms keep Sara from taking part in kindergarten activities, and her intelligence is in the average range.

Decision: Sara is diagnosed with autism spectrum disorder, without accompanying intellectual impairment, with accompanying language impairment, at support Level 2 for social communication and Level 2 for restricted behaviors.

You may be wondering: how can the support level be 2 when her score on the **CARS-2** is in the mild-to-moderate range? The answer is that the team judges the level of support from Sara's day-to-day functioning at

kindergarten and at home; the scale score is only one of its inputs, and she genuinely needs substantial support to take part in any group activity.

What does this mean for the teacher? Sara will need a picture schedule that introduces activities in advance, preparation before any change, noise-reducing headphones during song time, and direct teaching of shared play skills, first with one child and then with a small group.

What evidence could change the decision? If her participation in group activities improved markedly after months of the picture schedule and direct instruction, the support level would need to be reviewed; and if a comprehensive language evaluation showed that her language comprehension is much weaker than it appeared, the language impairment specifier and the interpretation of some of her symptoms would have to be reconsidered.

Case two: Fahd, 7 years

When there is a better explanation

The story: Fahd's second-grade teacher complains that Fahd “lives in his own world.” He sometimes does not turn when called, rarely talks with classmates, and sits alone at recess. The teacher had attended a training course on autism and began to see its signs in Fahd; he completed the Gilliam scale for him, and the probability of autism came out high. But the teacher had also noticed something that puzzled him: in some weeks Fahd responded well, and in others it was “as if he can't hear anyone.” He took this to mean that Fahd “chooses when to engage.”

What the team did first: Before any autism instrument, the team began with the second step of the pathway: hearing and vision screening. Fahd failed the school hearing screening in both ears and was referred to an

audiologist.

The evidence the team gathered:

Table 9.12: Evidence in Fahd's case, in the order it was gathered.

Source	Result	What it means
GARS-3, teacher rating (reason for referral)	High probability of autism	The teacher sees worrying traits at school
School hearing screening	Failed in both ears	Everything stops until the cause is known
Audiological evaluation	Fluid in the middle ear on both sides, indicated by tympanometry, and a mild conductive hearing loss. The family reports recurrent ear infections since kindergarten	This is the key to the case: hearing loss that fluctuates from week to week
GARS-3, father's rating	Low probability	Home does not see the same picture; this discrepancy deserves a pause
Developmental interview with the father	In his early years he pointed, waved and shared his interests, and played pretend games with his siblings	His history shows no restricted social or behavioral pattern
Structured classroom observation after eight weeks of medical treatment and moving his seat to the front	Turned to his name on 9 of 10 occasions and joined two classmates in a game at recess	Most of what worried the teacher disappeared once the hearing barrier was removed

Source	Result	What it means
ADOS-2 and ADI-R	Not administered	The team decided they were not needed once a better explanation emerged and the concerns resolved

A X
Sound interaction when he can hear

B X
No restricted patterns

C
Not applicable

D V
Academic impact before treatment

E
Not applicable

How the team read the evidence: Fluid in the middle ear makes hearing weaken and recover with the state of the ear, so a child hears well one week and poorly the next. This explains what puzzled the teacher: what he took for a “choice” to engage was hearing that came and went, especially when the teacher called him from behind amid the noise of thirty students. Fahd avoided his classmates at recess because he could not follow their talk over the noise, and he felt embarrassed. At home, where his father speaks to him face to face, his interaction is sound.

Matching the criteria: Criterion A was not met, because Fahd showed appropriate social reciprocity and nonverbal communication once the hearing barrier was removed, and throughout his developmental history. Criterion B was not met either. When the two core criteria are absent, there is no need to consider the remaining conditions. Specialists call what happened here **differential diagnosis (Differential diagnosis):** the visible symptoms found a better explanation in the hearing loss.

Decision: Fahd is not diagnosed with autism. He will be followed by an ear, nose and throat physician and an audiologist, with periodic hearing checks because the fluid may return with further infections; he will sit at

the front of the class near the teacher; and he will receive language support if the years of fluctuating hearing have left a mark on his language. The team will revisit his social functioning if difficulties persist once his hearing has stabilized.

The lesson

Had the team relied on the rating scale alone, Fahd would have been misdiagnosed and denied the services he actually needs. Had the observation schedule been administered before the hearing test, its result would have been open to doubt, whatever it showed.

Sequence is part of the evidence: the senses first, then the autism instruments. Disagreement among sources and week-to-week fluctuation are two signals that call for stopping and investigating.

What evidence could change the decision? If his difficulties with social initiation and shared interest persisted for months after his hearing had stabilized, or if restricted, repetitive patterns of behavior that had not been evident emerged during follow-up, the assessment would need to be completed with the diagnostic interview and the observation schedule.

Case three: Layan, 12 years

When giftedness masks autism

The story: Layan is one of the strongest sixth graders in mathematics and science, and she was nominated for the gifted program. Her program teacher, however, noticed something striking: Layan solves problems expertly on her own but falls apart in group projects. She insists on doing things her way and cannot understand why her classmates get upset when she corrects their mistakes in front of everyone. At every opportunity she talks about astronomy in endless

detail, without noticing that those around her have grown bored. Her mother says she comes home from school exhausted and spends hours alone in her room.

Why was she identified so late? Because her academic excellence led everyone to explain her behavior away as “the quirkiness of high achievers.” Her excellent language covered her difficulties in social communication. She had also memorized polite phrases and used them in the right places, so she appeared well adjusted, as we explained in our discussion of girls in Section 9.4. Her difficulties became clearly visible when relationships among classmates grew more complex at this stage, which is exactly what Criterion C means when it states that symptoms may not become apparent until social demands exceed the child’s capacities.

What set her assessment apart:

- The **High-Functioning Version CARS-2-HF** was used rather than the Standard Version, because she speaks fluently and her intelligence is high. Had the Standard Version been used, her score would have come out unfairly low.
- **Module 3** of the **ADOS-2** was administered; it includes a conversation about friendship and emotions, and it was there that her difficulties clearly emerged.
- In the interview, her mother recalled that Layan was reading by age four, yet she would move away from the other children in the family to line up and count objects, and she became upset if anyone moved them.

A ✓ Evident in conversation and interview	B ✓ Routines and intense interest	C ✓ Indicators in early childhood	D ✓ Social impact and exhaustion	E ✓ High intelligence
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Decision: Layan was diagnosed with autism spectrum disorder without intellectual disability and without language impairment, at support Level 1. She is therefore a **twice-exceptional (Twice-exceptional)** student: gifted and autistic at the same time (Chapter 13 returns to twice-exceptional learners in detail).

What does this mean? Layan remains in the gifted program and receives both services together: enrichment suited to her abilities, and support in social skills and in understanding others' perspectives, along with clear roles in group work. Here the diagnosis preserves her giftedness, explains what had been puzzling in her behavior, and opens the door to the support she needed.

What evidence could change the decision? If follow-up showed that her social difficulties ease considerably when she finds peers who share her interests and abilities, or if an anxiety assessment revealed that her breakdowns in group projects are better explained by recent social anxiety than by a pattern extending back to early childhood, the team would need to revisit the diagnosis.

9.9 Differential diagnosis

The three cases have taught us that a single symptom can arise from different causes. Not responding to one's name may stem from autism, from hearing loss, or from deep absorption in a toy. This is why the team always makes sure that the symptoms are not better explained by another condition. The following are the main conditions that can resemble autism:

Table 9.13: Conditions that can resemble autism and what distinguishes them.

Condition	Similarity to autism	Distinguishing features
Social (pragmatic) communication disorder	Difficulty using language socially: initiating conversation, taking turns, and understanding hints	No restricted, repetitive patterns of behavior, meaning that Criterion B is not met. This is the diagnosis in the manual closest to autism
Intellectual disability	Weak communication and social skills	The child’s social skills are consistent with his overall level of intellectual development. The two disorders may co-occur
—	Delayed speech and little spontaneous talk	The child wants to interact, compensates with pointing, gestures and facial expressions, and shows no restricted patterns of behavior
Hearing impairment	Not responding to name, and delayed language	Eye contact and gestures are intact, and interaction improves when the child can hear well. Hearing loss may fluctuate with middle ear infections, so responsiveness looks “selective,” as in Fahd’s case
—	Social difficulties and impulsivity	The child understands social cues, but impulsivity and poor attention keep him from following them. The two disorders frequently co-occur
Social anxiety and selective mutism	Withdrawal and little speech in front of others	The child has social skills but fear holds them back, and he interacts normally at home and with familiar people

Condition	Similarity to autism	Distinguishing features
Severe environmental deprivation	Poor interaction and attachment	A history of severe neglect, with rapid improvement once care and environment improve
Giftedness	Deep, narrow interests, and difficulty with peers	The child's interests are flexible and he enjoys sharing them, and his difficulty eases when he finds peers of similar ability. The two may co-occur, as in Layan's case

Questions teachers ask themselves before referral

1. Does the behavior appear in every situation, or only in one setting or with one person?
2. Have the child's hearing and vision been checked recently, beyond the newborn screening? Does his responsiveness fluctuate from one week to the next?
3. Does he interact normally with familiar people, at home or with a relative?
4. Has there been a major recent change in his life, such as a move, a loss, or a new baby?
5. Does he understand what is asked of him but not do it, or does he not understand it at all?

9.10

Co-occurrence and medical evaluation

Differential diagnosis asks: which of the two conditions? Co-occurrence, by contrast, asks: is there another condition alongside autism? In autism, co-occurrence is the rule rather than the exception. In the 2020 U.S. surveillance

data, 37.9% of autistic children with available ability data had intellectual disability (Maenner et al., 2023). A meta-analysis of published studies estimated the prevalence of attention-deficit/hyperactivity disorder among autistic people at about 28%, anxiety disorders at about 20%, sleep disorders at about 13%, and depression at about 11%, with wide variation across studies depending on sample and age (Lai et al., 2019). Since its fifth edition, the diagnostic manual no longer prohibits diagnosing autism and ADHD together.

Table 9.14: Common co-occurring conditions in autism spectrum disorder and what their assessment requires.

Co-occurring condition	What we know about its frequency	Assessment guidance
Intellectual disability	Present in more than one third of autistic children in the U.S. surveillance data (Maenner et al., 2023)	Autism is diagnosed alongside it only if social communication is below what would be expected for general developmental level (Criterion E). The specificity of the observation schedule declines as mental age falls substantially, so false positives become more frequent; its result is read cautiously in severe disability, and developmental history is given greater weight
—	About 28% in the meta-analysis (Lai et al., 2019)	Some items on attention scales overlap with the social features of autism, so scores rise for reasons other than attention. The same attention and impulsivity symptoms are therefore asked about in situations that do not depend on social interaction, and from more than one source

Co-occurring condition	What we know about its frequency	Assessment guidance
Anxiety	About 20% (Lai et al., 2019)	It often shows up as a more rigid insistence on routine or as meltdowns at transitions, and is thus confused with restricted behavior. The questions to ask: Has the behavior increased with a new stressor? Can the student describe his fear?
Sleep disorders	About 13% as diagnoses, with complaints considerably more common (Lai et al., 2019)	Lack of sleep weakens attention and increases outbursts at school. The family is therefore asked about sleep before any decline in behavior is interpreted
Epilepsy and gastrointestinal problems	More common than among children in general; epilepsy is more frequent with intellectual disability	Unnoticed seizures, constipation and pain can surface as aggressive behavior or sudden withdrawal in a child who does not express himself in words. The child is referred to a physician before the new behavior is attributed to autism itself

Medical and genetic evaluation is part of the comprehensive assessment, not an appendix to it. Current guidelines recommend offering genetic testing to every child diagnosed with autism, beginning with chromosomal microarray and fragile X testing, and asking about seizures, sleep, feeding and the gastrointestinal system (Hyman et al., 2020). Genetic referral becomes all the more important in communities where consanguineous marriage is common, Saudi society among them; its rate reached 56% in a national sample of mothers (El Mouzan et al., 2008). The working rule is that after every autism diagnosis, the team asks two questions: Is there anything in the file that autism alone does not explain? And has that area been measured with a tool suited to the student's developmental level?

9.11

In the Saudi and Arab context

 In the Saudi context

Table 9.15 sets what this chapter has presented against the U.S. Individuals with Disabilities Education Act (**IDEA**) and against two Saudi documents: the Regulations for Special Education Institutes and Programs (Ministry of Education [Al-Ma'arif], 1422 AH [Arabic]) and the Special Education Organizational Guide, the most recent published edition we were able to find (Ministry of Education, 1436 AH [Arabic]). Educational criteria are criteria of **eligibility for services**, and their function differs from that of medical diagnostic criteria.

Table 9.15: Autism spectrum disorder in the diagnostic manual and the international classification, in U.S. law, and in Saudi regulation.

Element	DSM-5-TR and ICD-11	IDEA (United States)	Saudi regulations
Terminology	Autism spectrum disorder	Autism	“Autistic disorder” in the Regulations, and “autism spectrum disorder” in the Guide

Element	DSM-5-TR and ICD-11	IDEA (United States)	Saudi regulations
Definition	Persistent deficits in social communication, and restricted, repetitive patterns	A developmental disability significantly affecting verbal and nonverbal communication and social interaction	Regulations: “a disorder that occurs in the child before the age of 36 months.” Guide: “persistent deficits in social communication and social interaction across multiple contexts,” worded to match Criterion A in the fifth edition of the diagnostic manual
Age of onset	The early developmental period, though symptoms may not become apparent until later	Generally evident before age three, which does not preclude identifying a child whose characteristics emerged later if the criteria are met	Regulations: before 36 months, an age restriction carried over from older definitions
Impact	Clinically significant functional impairment (Criterion D)	Adversely affects educational performance	Implicit in the definition of a student with a disability: a deficit “to the extent that requires the provision of special education services”

Element	DSM-5-TR and ICD-11	IDEA (United States)	Saudi regulations
Exclusion	Symptoms are not better explained by intellectual disability	The category does not apply if the educational impact is primarily due to an emotional disturbance	We found no autism-specific exclusion clause in the documents we reviewed
Who decides, and with what tools	A qualified professional under each country's regulations	A team of professionals together with the parents, using multiple tools; no single procedure is sufficient	The assessment team, including the school principal, the special education teacher, the general education teacher, the student counselor, specialists according to the category, and the parent or guardian; “not relying solely on the results of a single scale,” with tools “approved by the Ministry of Education”
Consent and timelines	Not addressed	Parental consent, with the evaluation completed within 60 days of consent	Written consent after formal notice; no response within 14 days “is considered permission and consent.” The diagnosis is repeated 6 to 18 months after the initial diagnosis

Sources: American Psychiatric Association (2022); WHO (2024); Assistance to States for the Education of Children With Disabilities (2006, §300.8(c)(1), §300.301, §300.304); Ministry of Education [Al-Ma'arif] (1422 AH [Arabic], Article 1); Ministry of Education (1436 AH [Arabic]).

Three observations follow from this comparison. **The first** is that the older Regulations' definition restricts onset to before 36 months, whereas the current diagnostic manual acknowledges that symptoms may not become apparent until social demands exceed the child's capacities. A student like Layan (9.8) could be excluded if the older text were read literally, even though her early indicators surfaced in the interview. **The second** is that treating silence as consent after fourteen days differs from the U.S. requirement of explicit consent, and it places an ethical burden on the school to make sure the family has actually understood the notice. **The third** is that the Guide requires tools "approved by the Ministry of Education," yet at the time of writing we found no published list of such tools. The Law on the Rights of Persons with Disabilities affirms the right of persons with disabilities to the "provision and adaptation of ... modern measurement and diagnostic tools" and to "early intervention programs" (Article 8), and to "early detection of disability" (Article 9) (Law on the Rights of Persons with Disabilities, 1445 AH [Arabic]).

Table 9.16 summarizes what we know about the Arabic versions of the instruments covered in this chapter:

Table 9.16: Arabic instruments available for autism assessment, based on what we found published at the time of writing.

Instrument	What we know about its Arabic version	What is missing
M-CHAT and M-CHAT-R/F	Validation of the first edition in nine Arab countries: sensitivity 0.86, specificity 0.80 (Seif Eldin et al., 2008)	An Arabic norming study of the revised version with follow-up, in universal screening rather than a referred sample
CARS-2	An Arabic edition (Akoury-Dirani & Alameddine, 2016 [Arabic]), a factor-structure study with 301 children (Alotaibi & Alotaibi, 2021), and an adapted Iraqi version (Al-Shibly et al., 2025)	Arabic T-score norms, and classification-accuracy studies with comparison samples
GARS-3	An Arabic version studied in Saudi Arabia with 178 participants, with high internal consistency (Alasmari et al., 2024a, 2024b)	Saudi norms for the index, and sensitivity and specificity studies
SCQ and SRS-2	We know of no published standardized Arabic version	Standardization and accuracy studies
ADI-R and ADOS-2	We know of no published authorized or standardized Arabic version	A publisher-authorized translation, official training available in Arabic, and validation studies

A question for reflection: If the reference diagnostic instruments have no authorized Arabic versions, on what evidence can a team at your school build a decision it can be confident in, and how should the report state the limitations of the tools it used?

Conclusion

The argument we have developed in this chapter centers on the idea that a judgment of autism spectrum disorder is reached when evidence from developmental history, direct observation, and information from home and school converges to show that all five criteria are met, which makes it broader than anything a single scale can say. It follows that hearing and vision testing comes before any instrument, that a screening result is treated as an invitation to comprehensive assessment, that disagreement between sources is taken as a signal to look for another explanation, and that medical and genetic evaluation forms part of the comprehensive assessment, because co-occurrence is so common. The teacher plays a pivotal role in all of this: documented, objective observation; honest completion of rating scales; and an informed reading of the diagnostic report.

Questions about the numbers and the instruments nonetheless remain open. Prevalence figures vary with the way children are sought out, so they should not be read without asking how those children were reached, and most screening and diagnostic instruments lack published Arabic norms. Caution remains essential with those who tend to be identified late, such as gifted students and girls who mask their traits: giftedness can conceal autism, and autism does not cancel out giftedness.

Summary, key terms and activities

Chapter summary

- Autism spectrum disorder is diagnosed when all five **DSM-5-TR** criteria are met: the three forms of social communication deficit, at least two of the four forms of restricted behavior, early onset, clear impact, and the absence of a better explanation by intellectual disability. **ICD-11** classifies the disorder by the presence of disorder of intellectual development and the degree of impairment in functional language, rather than by support levels.
- Prevalence figures vary with the way children are sought out, so the first question to ask of any figure is: how were these children found?
- Red flags call for evaluation without delay; the loss of any acquired skill calls for it at any age; and all children are screened at 18 and 24 months.
- Hearing and vision testing precedes any autism instrument, because an instrument's result for a child who does not hear well is open to doubt whatever it turns out to be.
- Screening tools sort but do not diagnose; rating scales convey what is seen by those who know the child; and diagnostic instruments are administered by a trained specialist. Most of these instruments lack published Arabic norms.
- No single scale is sufficient for reaching a judgment. The judgment is made when evidence from developmental history, direct observation, and information from home and school converges.
- Disagreement between sources is a signal to look for another explanation, such as hearing loss or a language disorder; co-occurrence is very common; and medical and genetic evaluation is part of the comprehensive assessment.

- Giftedness can mask autism, many girls camouflage their traits, and autism does not cancel out giftedness.
- The teacher's role is pivotal: documented, objective observation; honest completion of rating scales; and an informed reading of the diagnostic report.

Glossary of terms

Joint attention	When a child directs another person's attention to something, or follows that person's attention to it, so that the two share an interest in it, as when a child points to an airplane and looks at his mother.
Echolalia	Repeating words or phrases the child has heard from others, either immediately or after a delay, often in the same tone of voice.
Screening	A quick procedure applied to a large group to determine who needs a more in-depth assessment; it does not yield a diagnosis.
Rating scale	An instrument on which someone who knows the child rates the extent to which specific behaviors appear, using a graded scale.
Cut-off score	The score that separates two ranges in interpreting a scale, such as a score of 30 on the Standard Version of the CARS-2 .
Scaled score	A standard score with a mean of 10 and a standard deviation of 3, used on subtests to compare a

	student's performance with the norming sample.
Sensitivity	The proportion of those who actually have the disorder whom the instrument correctly identifies.
Specificity	The proportion of those who do not have the disorder whom the instrument correctly rules out.
Positive predictive value	The probability that the disorder is actually present in someone with a positive result; it depends on the prevalence of the disorder in the group being tested.
Differential diagnosis	Establishing that the symptoms are not better explained by another condition.
Co-occurrence	The presence of another disorder alongside autism at the same time, such as intellectual disability, ADHD or anxiety; each is diagnosed and planned for.
Functional language	The child's ability to use language for everyday needs and communication; it is one of the two specifiers for classification in ICD-11 .
Catatonia	Freezing in movement, holding fixed postures, extreme slowness, or purposeless movements; it may accompany autism and calls for urgent medical referral.
Camouflaging	A person's attempt to hide their traits by imitating others and memorizing ready-made phrases for

	social situations; it is more common among females.
Twice-exceptional	A gifted student who at the same time has a disability or disorder, such as autism or a learning disability.

Review questions

1. Why does the manual require all three forms of Criterion A to be met, while requiring only two of the four forms in Criterion B?
2. A 22-month-old child scored 5 on the **M-CHAT-R/F**. What is the next step? Can we say that he has autism? Use Figure 9.4 to justify your answer.
3. A fourteen-year-old student speaks fluently and has an IQ of 115. Which version of the **CARS-2** should be used with him? Which module of the **ADOS-2**? Why?
4. The teacher's rating on the **GARS-3** was high and the family's was low. Give three possible explanations for this disagreement, then explain why the high internal consistency of the Arabic version is not enough to justify a judgment based on the index alone.
5. Returning to Fahd's case: what evidence could the teacher have observed in class that might have alerted him to possible hearing loss? Why did the team place the hearing test before the observation schedule?
6. In Sara's case, her **CARS-2** score fell in the mild-to-moderate range, and her support level was set at Level 2. Is this a contradiction? Explain.
7. How would you distinguish between a gifted student with deep interests and a twice-exceptional student who is autistic?
8. Classify Sara's and Layan's cases using the **ICD-11** approach, then explain what the description of support levels in the diagnostic manual adds and

what the description of functional language in the international classification adds.

9. Compare the prevalence figures for Riyadh (2.51%) and for Makkah and Jeddah (2.81 per 1,000). Give three methodological reasons for the difference, and explain which figure is better suited to estimating an education district's need for services, and why.
10. An autistic student's teacher rated his attention symptoms on a rating scale, and his score came out very high. What would you examine before accepting a co-occurring diagnosis of attention-deficit/hyperactivity disorder?
11. **Case for application:** Hatoon is fourteen and in the eighth grade (second year of middle school). The student counselor referred her because of repeated absences, isolation at recess, and crying spells before oral presentations. Her achievement is high in science and art. Her hearing and vision were tested last year and found to be normal. Her mother completed the Social Responsiveness Scale, yielding a T-score of 72; her science teacher completed it, yielding 58. Her mother also completed the Lifetime form of the Social Communication Questionnaire, with a score of 13. The mother recalls that as a young child she was "quiet, never asking for anything," lined up her stickers in a fixed order, became upset when the route to school changed, and has had an intense interest in horses since age six. Module 3 of the observation schedule was administered and yielded a classification of "non-spectrum," but the specialist noted that many of her responses seemed to be "memorized phrases." Hatoon says: "I get tired of playing the part of a normal girl all day." (a) Which criteria in the manual does the evidence support, and from which source? (b) How do you read the observation schedule result and the questionnaire score, given that both fall below the cutoff? (c) What is the strongest alternative explanation, and what evidence would distinguish it from autism? (d) What is your decision now: diagnosis, no diagnosis, or deferring judgment? Justify your decision, and specify what you would need in order to reach it.

Table 9.17: Mapping chapter objectives to review questions and learning activities.

Objective	Assessed by
1. Mapping behaviors to the criteria and the international classification	Questions 1 and 8, and part (a) of Question 11
2. Writing objective observations and identifying red flags	Activity 1
3. Sequencing the decision pathway and placing sensory screening first	Question 5 and Activity 6
4. Classifying instruments and choosing the instrument and its version or module	Questions 2 and 3, and Activities 2 and 5
5. Interpreting results and evaluating published figures and Arabic versions	Questions 4, 6 and 9, part (b) of Question 11, and Activities 4 and 5
6. Judging the sufficiency of evidence and distinguishing autism from similar and co-occurring conditions	Questions 7 and 10, Question 11 (case for application), and Activity 3

Learning activities

Any activity that involves observing a child or using a real student's data is carried out with the consent of the family and the school administration, without any data that could identify the student, and under the supervision of a qualified specialist; its results are not used in any decision concerning the student and are communicated to the family only through official channels.

- 1. Structured observation:** Observe a child in a natural setting over three sessions and record your observations in a log similar to Table 9.3, then rewrite a nonobjective observation in objective form, as in the first stage of 9.5. *Product: a three-session log and a rewritten observation. Time: three 20-minute sessions, plus about an hour for writing.*

2. **Examining the instrument:** Read the scene with Ziyad in the **ADOS-2** profile and the description of Module 3, then design a table listing the activities it mentions, the behavior each activity elicits, and the criterion it serves. If you have access to publisher-licensed training materials as part of official training, compare your table with them. *Product: a three-column table. Time: about 45 minutes.*
3. **Conflicting sources (group activity):** The group is given conflicting results from the teacher and the family and writes down what additional evidence is needed before any judgment, where it should be gathered, and in what order. *Product: an ordered list of evidence with a rationale for the order. Time: about an hour.*
4. **Reading a report:** Analyze the excerpt from Ziyad's report in Figure 9.12, or a real report with all student-identifying data removed, identify where each criterion was met, and then turn the recommendations into three measurable classroom goals. *Product: a criteria table and three goals. Time: about an hour.*
5. **A local instrument profile:** Choose an autism scale used in diagnostic centers in your region whose booklet and manual are available to you, and prepare a profile of it using the standard template in 9.6, with its twelve fields, including a statement of its licensing status and local norms. *Product: a completed profile. Time: about two hours.*
6. **The pathway in your school:** Consult the Special Education Organizational Guide and your education directorate's procedures, map the decision pathway as it actually operates, and then compare it with Figure 9.3: Who refers? When are hearing and vision tested? Who diagnoses? Which tools are approved? How long does it take from referral to decision? *Product: a comparison diagram and a critical paragraph. Time: about two hours.*

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When is it sound to conclude that a student has a disability, a disorder, giftedness or twice-exceptionality, and on what grounds?

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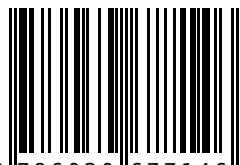
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