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Practices of Assessment of Behavioural Outcomes in Children with ASD in Lahore

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ABSTRACT

This study discovers current practices of assessment of behavioural outcomes in children with Autism Spectrum Disorder (ASD) in Lahore, while having a focus on how far they are in consonance with data-based international standards. For this purpose, a descriptive qualitative research methodology was used. For research, asynchronous written semi-structured interview was shared with therapist through Google Forms. Twelve professionals were selected for participation which includes clinical psychologists, special education teachers, speech and language therapists, occupational therapists, physiotherapists, ABA/behaviour therapists and child psychologists. The instrument was organised on four main themes: assessment tools and practices, data collection methods, reliability and validity, and cultural and ethical suitability. After collection, the data was analysed through the thematic analysis methodology. Afterwards, this study finds that therapists are using combine informal methods with a limited standardized tools. The standardized tools are inaccessible to them due to the cost, copyright, lack of Urdu versions issues. There are other data collection issues which also affects its reliability. Cultural norms are making priorities in therapies plan. This study contributes in the ongoing local evidence based dimension of ASD and it recommends for the need of a culturally adapted tools, structured training of staff and government-backed policy guidelines in order to have a consistent reliable behavioural assessment of ASD children in

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Pakistan.

Keywords: Autism Spectrum Disorder, behavioural assessment, special education, Autism Rating Scale, Autism Assessment Tools

I. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition that often appears in the early ages of life. It usually continues into teenage years and middle age. Children with ASD show difficulties in communication and social interaction. They also show repetitive patterns in their behaviour, interests, and activities (Al-Dewik et al., 2020). It is a collection of neurodevelopmental situations which share common features. These include difficulties in social interaction and communication, along with restricted behaviours, interests, and activities. Research also claims that this disorder is more common in males. This imbalance has limited scientific knowledge about autism in females, including clinical features, genetic factors, and brain structure (Calderoni, 2023). It has been recognized in the world as a serious public health as well as educational issue. There are estimates which show that almost one in every 127 persons has ASD; therefore, such figures show the impact of ASD on education and healthcare systems which is real and substantial (WHO, 2025).

The symptoms of ASD may vary among its affected persons. According to the American Psychiatric Association (2013), the disorder could be classified on the basis of its severity levels. The Level 3 shows that the person requires high level substantial support in daily routine life. This is because he may face issues in normal functions; he would have limited social interaction, and poor adaptableness in accordance with the circumstances (Mazurek et al., 2017). In addition, such children with ASD may also face conditions such as anxiety, depression, and ADHD, etc. For the reason of these differences in their different abilities and recurring problems, their assessment and intervention is required to be carefully designed which may cover each person or children. However, under these circumstances with limited resources, when there is scarcity of specialized assessment tools and trained professionals (Yasir et al., 2025), then the requirement for evaluation and assessment criteria creates grave concerns about the reliability and present assessment practices.

Behavioural assessment in special education is a continuous process. It guides

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interventions and measure student progress. Behavioural outcomes are key indicators that are used to monitor improvements in different areas of children with ASD, such as cognition, communication, social interaction, behavioural issues, and adaptive skills (Gitimoghaddam et al., 2022). The assessment of a student with ASD is required to be done carefully. It serves as the foundation of therapies like Applied Behavior Analysis (ABA) (Politte et al., 2015). It depends on correct and consistent data collection through observation or application of standardized assessment tools, with an aim to evaluate the success of Individualized Education Programs (IEPs) for children with ASD (Findley et al., 2022; Wilczynski et al., 2007).

The assessment protocols in ASD are based on two main behavioural domains as it has been described by the American Psychiatric Association (2013), in the DSM-5. First one is the Social Communication and Interaction Deficits, which include unusual social attitudes, difficulty in maintenance of conversations, and complications with nonverbal communication such as poor eye contact or limited use of gestures and the body language (Bishop et al., 2016). The second one, is the Restricted and Repetitive Patterns of Behaviours (Leekam et al., 2011). It covers the repetitive movements, repetitiveness, inflexible routines, and unusual responses to sensory response. Furthermore, educational assessment is required to cover the functional behaviours such as aggression, self-injury, property damage, and refusal to follow instructions: these are called challenging behaviours in ASD (Edelson, 2022). These behaviours require Functional Behaviour Assessment (FBA) in order to determine their cause (Anderson et al., 2015). These types of behaviours are important objectives for the assessment because they often interrupt continuous learning process and they may reduce participation of children with ASD in routine academic and holiday activities.

International best practices on the subject require the use of reliable and valid assessment tools to collect information from multiple sources with an aim to support ongoing therapies. There are various rating scales which are commonly used to monitor the educational plan for ASD children. The first one to mention is the Gilliam Autism Rating Scale (GARS) (Gorji et al., 2020). This helps in measurement of stereotyped behaviours, communication, and social interaction. Then comes the Social Responsiveness Scale (SRS) (Channell, 2020; Kerr-Gaffney et

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al., 2020). It aids in evaluation of social awareness and responsiveness. In addition, there is the Autism Spectrum Rating Scales (ASRS) (McClain et al., 2020a). It collects required information from different informants for children which are between 2 to 18 years old. All these tools provide quantifiable data which is useable for therapies and interventions, such as ABA. ABA methods, including Discrete Trial Training (DTT) and Pivotal Response Training (PRT), depend on correct and regular data collection for progress in ASD (Ali & Fazil, 2022; Lerman et al., 2016; Ona et al., 2020). Therefore, effective assessment protocols are the base for all educational and therapeutic decision making for children and children with ASD.

In the Punjab, Pakistan, the special education system functions under the Punjab Special Education Department. This department is managing various government institutions as well as private organizations for ASD (Bukhari et al., 2025). They are following the (Punjab Special Education Policy (2020). The policy has three main goals: strengthen governance, increase access, and improvement in the quality of special education and skill development. The policy also covers the need for correct and updated data on children with Special Educational Needs which includes ASD.

There are many local institutions who claim that they are following international methods such as ABA and TEACCH. However, despite these commitments, there are also various issues. The professional capacity of teachers is limited. Local research shows that large percentage of teachers gave incorrect answers about assessment approaches and many showed incorrect understanding of evaluation ways and means (Ullah et al., 2023). This lack of professional competence reveals a serious gap in the implementation of effective and reliable assessment practices within the Lahore.

This study covers three key challenges in the local landscape of Lahore. Firstly, there is a lack of assessment reliability. Therapist or teachers often do not use reliable, data-based tools which are needed for evidence-based interventions like ABA. Secondly, most of the standard autism assessments have been developed in Western contexts, which may create risk of cultural difference if the same are applied without adaptation here in Punjab, Pakistan. For instance, eye contact or social interaction may vary across cultures. Thirdly, there is an absence of localized

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government supported data base on how assessments are being conducted after diagnosis, which is making it difficult for policymakers to identify gaps in these tools.

This study is important in order to improve special education in Lahore, Pakistan for special children. It helps in identification of gaps in prevalent assessment practices with an aim to develop more accurate and effective IEPs. The findings will help policymakers to improve quality and data collection, as well as it will be a guide for future research on cultural-based appropriate tools in special education.

II. Literature Review

This section reviews relevant national and international literature available and accessible related to practices of behavioural assessment in ASD. It sheds lights on various important theoretical foundations, recognized assessment tools, and their onwards application in educational systems. The focus is on challenges and their adaptations in the context of Lahore, Pakistan. Such children faces various issues, including health related (Suhaib et al., 2019).

A. Theoretical and Conceptual Background

An effective comprehension of behavioural outcomes depends on connection of the assessment process, with well-established scientific principles, that tells how social important behaviours have been measured, monitored, and resultantly improved. These principles provide the methodological basis for in the development of a reliable and effective educational interventions.

i. Applied Behavior Analysis (ABA)

ABA for the time being has been widely accepted as the basis of evidence-based interventions for children with ASD. It provides a structured and research-oriented approach which is aimed to improve the social and meaningful behaviours of the child. The theory is based on the idea that all objective behaviours: whether positive skills, such as communication or interaction with peers, or challenging behaviours, such as aggression or lack of attention, must be defined, observable, and measurable (Collins et al., 2025). However, Sulu et al., (2024) shows that cultural considerations are essentials.

ABA was developed by Lovaas (Lovaas, 1987), and now it is a scientifically stranded approach that focuses on understanding the behaviour through systematic

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observation and reinforcement techniques. It stresses on the use of evidence-based methods to endorse positive behavioural change and skill development for ASD children (Lovaas, 2003).

The use of ABA techniques, such as DTT and PRT, relies on accurate and consistent data collection to track the progress of student and to add necessary changes in intervention plans (Ostrovsky et al., 2023). The scope of ABA-based assessment is all-encompassing due to data collection: it covers both the development of new skills for example toileting and reading words and the generalization and maintenance of learned behaviours. The data helps to determine duration of the therapies (Cox & Sosine, 2025), not only in ABA but also in occupational therapies (Schaaf, 2025).

Therefore, practices of assessment in this context is not a one-time diagnostic procedure but it is continuous and repeated process to in monitor the progress in different domains, such as cognition, communication, social interaction, and adaptive skills.

ii. Functional Behaviour Assessment (FBA)

FBA is internationally recognized as an important assessment in the management of behaviours among children with ASD (Kozlowski & Matson, 2012). It allows professionals to understand the main purpose or function of a behaviour instead to focus on its external appearance. Gresham et al., (2001) shows that this a structured process helps to examine how environmental factors, such as triggers (antecedents) and outcomes (consequences), are linked with the problematic behaviour. And this is how it helps to design more effective and individualized intervention plans for children with ASD. The special education teachers are required to understand this theory for effective planning of education plans (Lewis et al., 2017).

Studies conducted by various researchers (Alter et al., 2008; Tarbox et al., 2009; Wightman et al., 2014) show that the FBA process in general follows a structured and tiered approach that works from initial information collection and ends in detailed analysis stage. It begins with indirect assessments, where interviews and questionnaires are used to collect background information from caregivers, parents, and teachers. These are used to know about the history, rate of recurrence, and context of the behaviour. The second stage involves descriptive assessments. It

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includes direct observation and real-time recording to recognize consistent patterns and triggers for the behaviour. The final stage is the functional analysis (experimental). Herein, antecedents and consequences are manipulated under controlled conditions to test hypotheses and to confirm the precise cause-and-effect relationship in the behaviour.

B. International Assessment Practices

The internationally accepted standard for practices of assessment of behavioural outcomes in children with ASD is based on the objective measurement of symptoms and their behaviours. This can be accomplished through a combination of direct observation and the use of standardized, psychometrically comprehensive assessment tools. For this purpose, data collection and interpretation by a multidisciplinary team of professionals is also important.

There are various standardized rating scales which are considered as key instruments in evidence-based practices. They offer quantitative, norm-referenced data for accurate diagnosis. It helps to determine the level of severity, and to track the progress. These tools are aligned with the diagnostic and assessment criteria set forth by authoritative bodies such as the American Psychiatric Association (2013). Following are the accepted tools:

i. The Gilliam Autism Rating Scale (GARS-3)

Samadi et al., (2022) shows that the GARS-3 nowadays is the basic recognized and internationally used tool for identification of ASD. It is also being used to assess its severity among persons who are between 3 to 22 years. It measures symptoms through six specific subscales: Restricted and Repetitive Behaviours, Social Interaction, and Social Communication.

ii. Social Responsiveness Scale (SRS)

The SRS is another tool which is designed to assess the two core domains of ASD: one, which is difficulties in social communication; second, which is the restricted or repetitive behaviours and interests. It is understood that a valid screening tool for ASD must address these diagnostic areas in order to ensure accurate behavioural assessment. Although most autism assessment tools have been developed for children and adolescents, yet there has been limited evidence regarding their effectiveness for adults. A study was conducted by Chan et al., (2017) with 237

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adults diagnosed with ASD to examine the validity of the SRS as a measure of autism symptom severity. Their results indicated that the SRS factors, which correspond to the two core diagnostic domains, were strong predictors of ASD. Moreover, SRS factors have the ability to show different associations with other measures which are specific to either social or behavioural dimensions. Therefore, researchers (Chun et al., 2021) support on the idea of its reliability as an assessment tool in different age groups.

iii. Autism Spectrum Rating Scales (ASRS)

The ASRS are comprehensive assessment tools which are developed to measure behaviours associated with ASD in children and adolescents who are aged 2 to 18 years (McClain et al., 2020b). The ASRS collects information from multiple informants. It includes parents and teachers. The aim is to provide a well-rounded view of a child's functionality in different environments. It evaluates various domains, containing social communication, peer interaction, behavioural inflexibility, besides sensory sensitivity. Camodeca & Walcott, (2021) discussed why this tool is appreciated. They found that the reasons are due to its psychometric properties and due to its ability to generate standardized scores that help to diagnose and monitor progress in the child. Through combination of input from both home and school environment, this tool supports the evidence-based educational and therapeutic plan for children with ASD.

iv. Childhood Autism Rating Scale (CARS)

The CARS is one of the initial used diagnostic instruments for identification of ASD in children. It is designed for aged two years and above. It evaluates a range of behavioural characteristics which are associated with autism, such as social interaction, communication, emotional response, and sensory sensitivities. Chlebowski et al., (2010) through their work show that this scale consists of items which are rated through a structured observation and professional judgment; it provides a total score which indicates the presence and level of autistic traits in a child. CARS still considered as a valuable tool in both educational and clinical environments due to its reliability, ease of use, and clinical relevance, to differentiate children with ASD from those with other developmental delays. Researchers also show that these scales, the CARS and the SRS, complement each other (Chen et al.,

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2018). Some also suggest that CARS must be used together with other confirmatory instruments and scales (Moon et al., 2019).

C. Role of Multidisciplinary Teams and Data Collection Modalities

International best practices revealed that a comprehensive assessment of behavioural outcomes, which covers social as well as communication perspectives, in persons with ASD requires an organized and team-work approach (Sigafoos et al., 2023). Multidisciplinary teams, who are comprising on psychologists, special educators, speech therapists, occupational therapists, and medical professionals, collect consistent and objective information from multiple sources with an aim to ensure correctness and reliability on the data. This collaborative process then uses in the development of personalized and effective Behaviour Intervention Plans (BIPs). There are various data collection methods, as above referred. It includes different standardized assessment scales, structured interviews with parents and caregivers, sometimes direct behavioural observations, and the analysis of medical and educational records.

However, application of these data-based assessment practices in resource-constrained countries like Pakistan is not less than a challenge. In this context, Ishfaq and Sultan, (2024) conducted a study to explore different treatment approaches for ASD in Lahore, Pakistan. They used a descriptive qualitative design for their study to identify gaps between local treatment practices and international standards. Their findings highlighted major inadequacies in the treatment infrastructure for ASD in Lahore, Pakistan. They emphasis on provision of support which is tailored to adolescents' distinct psychological and behavioural needs. Moreover, Bauer et al., (2022) highlighted that although the use of psychometrically validated tools such as the GARS and ASRS are being used for obtaining reliable data, yet these instruments are typically developed and published in Western countries and are often expensive in low income countries.

D. Cultural and Contextual Considerations

ASD is a lifelong developmental disorder which is marked by various difficulties in social interaction, communication, and the presence of repetitive behavioural issues. Zhang et al., (2006) through their work make emphasis on the use of cultural based development of appropriate assessment tools to ensure accurate early detection,

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diagnosis, and the implementation of evidence-based interventions. In multicultural societies such as the United States, the provision of culturally competent services is also crucial, to make sure that children with ASD and their families who come from diverse cultural and linguistic backgrounds could receive equitable and effective support in therapies.

Likewise, in another study, researchers (Soto et al., 2015) have highlighted that selection of children for ASD has become progressively common. Their conducted review to identify that autism selection tools that had been culturally adapted to assess the psychometric reliability of these translated instruments. Their review included 21 studies which was conducted in 19 countries and in 10 different languages. Their findings showed that the cultural adaptation procedures were often not clearly documented and, in many cases, did not follow the recommended methodological guidelines. It was observed by them that there were differences found between the psychometric properties of the original and adapted versions. Their study underscore on the premise of developing a local normative data collection, assessment practice, in order to enhance the reliability and practical usefulness of these screening tools.

In view of the above, the reliance on assessment practices and instruments which have been basically developed in foreign contexts could be a major structural limitation that has the capacity to undermine the psychometric reliability of local data in the context of Pakistan. Ahmad et al., (2025) in their study shows that therapist and doctors in developing countries such as Pakistan face many challenges to distinguish between Autism Spectrum Disorder (ASD) and Intellectual Disability (ID), primarily due to the lack of locally validated diagnostic tools. Such studies emphasize on the urgent need for standardized instruments that are culturally and linguistically adapted to the Pakistani population and capable of differentiation between these overlapping conditions. Moreover, cases of ASD in Pakistan are not systematically recorded or reported through any centralized governmental database (Asghar et al., 2023). Resultantly, this makes it more difficult for policymakers to assess existing gaps in specialized assessment tools, professional training, and international standards. As a result, quality assessment and intervention still can be considered as an exception rather than a norm.

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III. Research Methodology

This study used a descriptive qualitative design with an aim to explore the prevailing practices of behavioural assessment among children with ASD in Lahore. The qualitative approach has been chosen to have a comprehensive view of how assessment procedures are being implemented in special educational institutions and clinics. The aim is also to highlight to what extent these practices are aligned with data-based international standards. For this purpose, the participants of the study included not only the *special education teachers and therapists* who are working with children diagnosed with ASD in both *government and private special education institutions* but also the administrators and heads of these institutions in Lahore. A purposive sampling technique has been used to select participants, who have had at least one year of experience, in behavioural assessment or intervention therapies for children with ASD. In total, 12 participants were included in the study.

Moreover, data has been collected through an asynchronous, written semi-structured interview, which was shared with participants through google forms. Since the participants are teachers, therapist, administrators, heads of special education institutions and clinics, therefore, this method has been selected. The interview guide was developed on the basis of themes that have identified in the literature review. It has its focus on assessment tools, data collection methods, reliability concerns, and cultural appropriateness. Each interview took for approximately 20–30 minutes for the participants to write answers. During the study, the collected information was analyzed through direct quotation from interviewee point of view and then its analysis. Themes were organized to reveal patterns which are related with assessment practices, institutional barriers, and resource limitations. This method provided an organized comprehensive overview on the topic of behavioural assessment which is being practiced in Lahore.

On the ethical perspective, all participants were informed about the purpose of this study. All have voluntary consent to participate. Confidentiality and anonymity has been ensured through withholding personal identification particulars and institutional names. Ethical approval has been obtained from the academic authorities of the researcher's institution.

IV. Research Instrument Development

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For this study, an asynchronous written semi-structured interview schedule was developed and it was shared with participants through Google Forms. The instrument was designed with an aim to discover how behavioural outcomes in children with ASD are being assessed in special education and clinics in Lahore by their therapist.

The first part of the form described a brief consent statement. It informs participants about the purpose of this study, request them for their voluntary participation. After consent, four short background questions were included to describe the sample:

- current professional role/title;
- type of institution (school, therapy centre, hospital/clinic, etc.);
- total years of experience working with ASD students;
- approximate age group of ASD students usually evaluated.

Thereafter, the main body of the instrument was designed which have eight open-ended questions. They are designed on the basis of four pre-defined themes which were derived from the literature review and theoretical framework of the study, and these are as follows:

1. **Theme 1: Assessment Tools and Practices**
    - Q1 asked participants which *formal (standardized)* and *informal* tools they currently use to evaluate behavioural outcomes of ASD in children.
    - Q2 explored tools they would *like* to use but cannot, for reasons such as cost, copyright, lack of Urdu translation, or insufficient training.
2. **Theme 2: Data Collection Methods and Application**
    - Q3 asked participants to describe how they collect behavioural data (e.g., frequency, duration, intensity, latency) and the practical challenges they face.
    - Q4 focused on how parents and caregivers are involved in the data-collection process.
3. **Theme 3: Reliability and Validity**
    - Q5 examined how participants try to ensure inter-rater reliability when multiple staff observe the same student.
    - Q6 asked about difficulties in deciding whether Western-developed

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behavioural scales are psychometrically appropriate for Pakistani students with ASD.

4. **Theme 4: Cultural and Ethical Appropriateness**
   - Q7 explored how local cultural norms and family values shape the selection and prioritization of behavioural outcomes.
   - Q8 asked how assessment results are communicated to families in a culturally sensitive and ethically appropriate way.

Table 4.1: ***Structure of the Semi-Structured Interview Instrument***

Theme	Questions Included	Purpose of Questions	Example Indicators
Theme 1: Assessment Tools & Practices	Q1–Q2	Identify formal and informal tools used; identify unavailable tools due to cost, copyright, language, or lack of training	CARS, ABC Charts, Conners, PGEE, Observation, VB-MAPP, ADOS
Theme 2: Data Collection & Application	Q3–Q4	Understand methods for behaviour measurement and parent involvement	Frequency, duration, ABC charting, observation, interviews
Theme 3: Reliability & Validity	Q5–Q6	Assess how professionals ensure consistency and evaluate Western tools' cultural validity	Inter-rater methods, cultural mismatch, translation issues
Theme 4: Cultural & Ethical Appropriateness	Q7–Q8	Explore influence of cultural norms and communication style with families	Manners, respect, politeness, strength-based communication

The instrument is designed to add therapist from different disciplines such as the clinical psychologists, special education teachers, speech and language therapists, occupational therapists, and behaviour therapists, etc. The questions were left open-ended with an aim to provide enough space to the participants to obtain their real-life data regarding their assessment practices. The instrument is also attempted to be closely associated with the four main dimensions that have been identified in during the literature review. These are the choice and availability of assessment

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tools, secondly the data collection procedures, thirdly the reliability and validity issues, and fourth one is the cultural/ethical relevance of assessment practices in Lahore.

V. Data Collection and Analysis

Table 5.1: ***Participant Demographic Summary***

Participant	Professional Role	Institution Type	Experience	Age Groups Assessed
P1	Clinical Psychologist	Speech Lingua Spot	2 years	Mixed
P2	Clinical Psychologist	Private Institute	5 years	Mixed
P3	Special Education Teacher	Therapy Center	2 years	Mixed
P4	Teacher	School	1 year	Mixed
P5	SLT	Private Univ	3 months	5+
P6	ABA Therapist	Special Needs	3 years	4–6
P7	Physiotherapist	Autism Center	4 years	2–9
P8	SLP	Speech Lingua	1 year	3–15
P9	Occupational Therapist	Rehab Center	2 years	25 students
P10	ABA Therapist	Autism Centre	1.5 years	4–12
P11	Behaviour Therapist	Clinic	2.5 years	1.5–18
P12	Therapist	Orion ABA	1 year	3–5

5.1. Data Collection Procedure

After obtaining ethical approval from the supervisor, the Google Form link was shared with professionals who are working with children who were diagnosed with ASD in Lahore in different institutions. A purposive sampling technique was used; only those participants who had at least one year of experience in their behavioural assessment or therapeutic work with ASD students were invited. Participants

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included from different institution and settings. It includes clinical psychologists, special education teachers, speech and language therapists, occupational therapists, physiotherapists, ABA/behaviour therapists, and child psychologists who are currently working in both government and private institutions. In total, 12 professionals completed the interview which has been shared with many. The participants completed the form at their own convenience. It took around 20–30 minutes for them. Their typed responses were automatically stored in Google Forms and then exported as a CSV file for analysis.

5.2. Data Preparation

The exported file contained: the consent confirmation; four demographic/background items; along with the eight open-ended responses corresponding to the four themes. The dataset was checked for completeness; all 12 respondents had answered the core open-ended questions, so no cases were removed. Spelling, grammar, and typing errors were left unchanged during analysis to preserve the original meaning of statements of participants.

5.3. Data Analysis Procedure

Since the nature of the study is qualitative, therefore, the data has been analyzed through the use of thematic analysis methodology. The process followed these steps:

1. **Familiarization**

   During this study, all responses for each question have been read and re-read in order to gain a comprehensive perceptiveness of experiences of participants regarding assessment of behavioural outcomes.

2. **Initial Coding:**

   The short descriptive codes were generated to have meaningful segments of the text. For example, phrases such as *"behavioural observation," "CARS, Conners, behaviour checklist," "ABC charts," "clinical interview,"* were coded under categories like *use of standardized tools, informal observation*, or *mixed methods.*

3. **Organization by Pre-defined Themes:**

   Since the interview schedule was already structured around four main themes, therefore, the analysis combined deductive coding (using these pre-set

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themes) with inductive sub-themes that have emerged from the data. Each response to Questions 1–8 was sorted under its corresponding theme.

4. **Development of Sub-themes and Patterns:**
   Within each theme, similar codes were grouped together to form sub-themes. For example, under "Assessment Tools and Practices", sub-themes such as *reliance on observational methods*, *limited but present use of standardized scales*, and *barriers to advanced tools* were identified.
5. **Interpretation and Synthesis:**
   Finally, the sub-themes were interpreted keeping in view the above referred literature review on ABA, FBA, and other standardized ASD assessment tools. The quotations from answers of the participants were directly selected in order to illustrate their own views at the same time while preserving the anonymity.

The following section presents the major findings which are organized according to the four thematic areas of the study.

VI. Findings

6.1. Theme 1 – Assessment Tools and Practices

Table 6.1: ***Frequency of Assessment Tools Mentioned***

Tool	Frequency
CARS / CARS-2	6
ABC Charts	4
Behaviour Checklists	5
PGEE	2
Conners Rating Scale	2
ABA Observation	6
ADOS (desired but not available)	7
Vineland-3 (desired)	4
ABAS-3 (desired)	4
BASC-3 (desired)	3

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Tool	Frequency
VB-MAPP	2

The responses disclosed that professionals in Lahore are using a combination of informal observation and selected standardized instruments in order to assess behavioural outcomes in children with ASD. In this process, several participants have reported the use of well-known standardized instruments also. It includes the (CARS / CARS-2), Conners rating scales, QABA, PGEE, behavioural checklists, and intelligence or emotional scales. One respondent, for example, listed *"CARS, PGEE, behaviour checklist, clinical interviews and behavioural assessment, Conners, CPM"*, whereas another mentioned using *"Autism Behavior Checklist (ABC) and ABAS-3."* At the same time, *informal and teacher-made tools* are being relied upon. Many participants highlighted that *behavioural observation forms, ABC charts, simple observational checklists, and clinical interviews* are being used by them as their main tools. One therapist described that he uses *"behavioural assessment form and behavioural observation,"* whereas another stated that they *"use simple observation checklists, ABC charts, teacher-made forms and sometimes tools like VB-MAPP or social skills checklists if available."*

Furthermore, when they are asked about tools they would like to use but they cannot, then most participants expressed interest in advanced, internationally recognized scales which includes *Vineland-3, ABAS-3, BASC-3, SRS-2, ADOS/ADOS-2, and more detailed language/behaviour rating systems.* They expressed various main reasons for not using these tools, and they included: cost and copyright restrictions, lack of formal training for proper administration and scoring, and the absence of Urdu translations or local norms.

Moreover, one participant unambiguously wrote that these tools *"require formal training for proper administration and scoring,"*. The other mentioned that tools such as *ADOS-2* and *Vineland-3* are *"not in Urdu or are limited by copyright."*

Generally, the Theme 1 shows that that at present the assessment practices in Lahore are partially aligned with international standards, however, they still remain reserved because of reasons such as resource limitations, gaps in there training, and accessibility of standardized instruments.

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6.2. Theme 2 – Data Collection Methods and Application

Table 6.2: ***Common Data Collection Challenges***

Challenge	Frequency
Lack of time	8
Behaviour too fast/unpredictable	6
Staff inconsistency	5
High workload / many students	5
Difficulty measuring intensity	4
Parent knowledge limited	4

For the second theme which is regarding data collection, most of the participants described that they are using basic behavioural recording methods. Several professionals stated that they are collecting data through *direct observation, behavioural assessment forms, and ABC (Antecedent–Behaviour–Consequence) charts.* One clinician wrote that *"behavioural observation and behavioural assessment form,"* and the other one explained that behaviour is being recorded through using *frequency, duration, intensity or ABC charts.* However, participants also pointed out multiple practical challenges, some are described below:

- difficulty in maintaining consistent recording during busy therapy sessions;
- high case load and time restrictions;
- behaviours that appear unpredictably, which makes it hard to capture frequency or latency accurately;
- limited support staff to assist with systematic measurement.

Moreover, the involvement of parents and caregivers has emerged as an important nevertheless an uneven practice. Some professionals involve them through *history-taking forms, clinical interviews, and regular feedback sessions*, whereas others specifically described *training parents to notice particular behaviours, reviewing their observations, and clarifying examples* in order to improve consistency. One respondent explained that parents are engaged through *"training them to notice specific behaviours, asking them to review examples, clarify observations, and ensure consistency."* These

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findings show that although data-based methods are recognized by them, yet their organized application is being hampered by time, workload, and training issues.

6.3. Theme 3 – Reliability and Validity

Table 6.3: ***Reliability Practices vs Issues Reported***

Reliability Practice Mentioned	Examples from Participants	Frequency
Shared definitions	"Clear behaviour definitions for all staff"	5
Joint observation	"Practice observations & compare recordings"	4
Standardized forms	"Use same checklists"	3
Score matching	"Matching scores"	1
No formal process	"Through experience only"	3

When they are asked about how they ensure inter-rater reliability, then many participants gave general descriptions rather than to refer a formal procedure. Some referred simply to *"using assessment tools," "matching scores," or "generalization,"*. This suggests that they rely on shared professional judgment rather than statistical checks. However, a few respondents did describe more structured practices, such as:

- To give all staff clear behavioural definitions and guidelines;
- To use standardized forms so that everyone records behaviour in the same way;
- To compare notes and discussing differences to reach consensus.

For example, one participant stated that they ensure reliability through providing their staff with *"clear behaviour definitions and checklists so everyone observes and records behaviour in the same way."*

Furthermore, during this interview the challenges which are related to the validity of Western-developed scales were intensely emphasized by the participants. They wrote in their answers that:

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- many items are not culturally appropriate or do not match Pakistani family expectations;
- language differences make it hard for parents with limited English proficiency to understand rating scales;
- there is uncertainty about whether scores *"truly represent Pakistani students with ASD."*

Table 6.3.1: ***Issues Reported & Frequency***

Issue	Frequency
Language barriers	9
Cultural mismatch	10
Parents cannot understand items	6
Behaviours not relevant in Pakistani setting	7

There are also various short comments such as *"language and cultural based," "cultural values, insight, cooperation,"* and there are longer explanations about mistrust of Western norms which indicate that professionals are well aware of validity concerns but then again there is a lack of alternative locally standardized tools.

6.4. Theme 4 – Cultural and Ethical Appropriateness

Table 6.4: ***Cultural Priorities & Frequency***

Priority	Frequency
Manners / politeness	9
Respect for elders	7
Social etiquette	8
Obedience / compliance	6
Daily living skills	5
Safety	4

The participants have also highlighted through their answers that local cultural norms and family expectations do shape which behavioural outcomes are prioritized during assessment. There are several participants who mentioned that parents are mainly concerned with *manners, respect, obedience, safety, and daily living skills*, rather

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than on abstract test scores. One participant provided that *local norms and family values lead them to focus on behaviours like compliance, politeness, and independence in self-care*, because they directly affect their functioning in the home and in their community. Moreover, in terms of communication results to families, most professionals reported that they try to:

- use simple, non-technical language;
- begin through highlighting the strengths of the child;
- share concerns gently and then they connect them with everyday examples;
- provide practical, achievable suggestions so that families may feel supported rather than blamed;
- respect family beliefs and they also involve them in planning their next steps.

One respondent explained that they *"communicate results in simple, respectful language, avoid technical terms, highlight strengths first, and then offer practical suggestions so families feel supported rather than judged."* These responses show that therapist and professionals are also sensitive to cultural and ethical issues. They also attempt to adapt their communication style, yet they are doing so on the basis of their own experience rather than on any standardized culturally adapted protocol.

6.5. Summary of Findings

During this study, it is deductible that in all four themes, it is suggested that professionals in Lahore are trying to combine informal observation with a limited regular standardized tools, such as CARS; in addition, there are locally available checklists in order to assess behavioural outcomes in children with ASD. Therefore, it also can be inferred that there is a desire to use more advanced, internationally recognized instruments, however their cost, copyright, lack of Urdu translations, and absence of training issues are acting as major barriers in their adoption. Further, data collection is also recognized as important, yet practices remain simplified and inconsistent. Therapists are reserved due to capabilities and unpredictable behaviour patterns. The formal procedures for inter-rater reliability and psychometric validation are weakly established ones. Although professionals are well aware of cultural mismatch in Western tools yet due to lack of locally normed alternatives, they are following the same.

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Table 6.5: ***Themes, Sub-Themes, and Representative Quotations***

Theme	Sub-Themes	Representative Quotes
Tools	Mixed tools; cost barriers; lack of Urdu versions	"I would like to use ADOS-2 but it is too costly."
Data Collection	Frequency & ABC charts; unpredictable behaviour; parent involvement	"Behaviour happens too quickly to record."
Reliability	Inconsistent staff practices; experience-based scoring	"We match scores but no formal system."
Cultural Factors	Focus on manners, respect, safety	"Families prioritize greeting, sitting properly, and politeness."

VII. Discussion

The purpose of this study was to discover the prevalent practices of behavioural assessment amongst professionals who are working with children with ASD in Lahore. The findings show that although practitioners reveal awareness of behavioural principles and the use of amalgamated methods formal and informal procedures, yet their assessment practices are controlled due to contextual limitations, resource scarcities, and cultural concerns. Despite this, the participants during their interviews acknowledged the importance of structured behavioural assessment for instance ABA, FBA, and other standardized rating scales like CARS, Conners, and ABC checklists (Gitimoghaddam et al., 2022; Samadi et al., 2022). However, similar to the concerns which are raised in low-resource circumstances internationally (Bauer et al., 2022; Ishfaq & Sultan, 2024), many respondents described that advanced and psychometrically tools such as ADOS-2, Vineland-3, BASC-3, or ABAS-3 are unavailable to them due to their high cost, copyright restrictions, and lack of Urdu translations for their usage in Pakistan. This bring into line with the above referred literature which also observed the absence of culturally adapted and cost-feasible instruments in Pakistan (Ahmad et al., 2025; Asghar et al., 2023).

Furthermore, the findings also shed light on the substantial reliance on informal methods of the participants such as behavioural observation, clinical

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interviews, ABC charts, and teacher-made checklists. Although these practices are theoretically consistent with ABA principles, yet the lack of standardization and preparation are restraining their reliability. Several participants specified challenges such as *"behaviour happening too quickly to record," "high workload,"* and *"inconsistent staff reporting"*, issues, which are also documented in previous research on behavioural assessment challenges in low-resource situations (Ullah et al., 2023).

Moreover, one of the noticeable theme in the data was the absence of formal inter-rater reliability procedures. Although some professionals reported that they are using shared definitions or joint observations, yet most of the responses suggested that the reliability issue is time and again depends on experience-based judgments rather than on structured protocols. This reiterate international concerns that behavioural assessments require organized staff training in order to avoid partiality and to ensure consistency (Collins et al., 2025; Lewis et al., 2017).

In addition, the other important outcome relates to the cultural mismatch between Western-developed tools and Pakistani family customs. In this context, the participants emphasized that many tool items do not support the local expectations for appropriate behaviour evaluation. For instance, some families prioritize politeness, obedience, safety, and respect for elders, and such domains not always underscored in Western rating scales. This makes it parallel with findings given by Zhang et al. (2006) and Soto et al. (2015), who also argue that cultural adaptation is an essential element in order to maintain validity of evaluations. This study also reinforces this point.

Lastly, professionals also emphasized on the importance of culturally sensitive communication with families. They deliberately simplified their language. They avoided technical terms, and provided them positive feedback. These results backed the prevailing research that also emphasizes on the role of culturally responsive communication in ASD assessment (Chlebowski et al., 2010; Chun et al., 2021). Taken as a whole, this discussion suggests that although practitioners who are working in Lahore are making their best efforts in order to perform accurate behavioural assessments, yet there are various constraints which needs to be removed from their way. It includes lack of validated tools, insufficient training, and cultural mismatch instruments and approaches.

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VIII. Conclusion

This study concludes that behavioural assessment practices for children with ASD in Lahore revolves around various dimensions covering the commitment, resourcefulness, and general limitations. Therapist are relying on observation-based tools and some basic standardized scales. Whereas, the more advanced assessment instruments are out of their reach due to financial, linguistic, and training related barriers. Moreover, the data collection being an integral part of this assessment process is also smeared with many challenges such as unpredictable child behaviour, limited time, and inconsistent staff reporting issues which also affect accuracy and reliability. In addition, there are various cultural factors which also influence assessment priorities. The families focus on manners, social etiquette, obedience, and daily living skills and not on overall rating results. These cultural expectations then bound the therapist to shape their goal in certain ways and not in accordance with standardized protocols.

This study contributes to existing knowledge through the provision of localized real-time evidence from Lahore, which was never done before, and it also highlights that there is an urgent need for contextually adapted behavioural tools with government-supported assessment guidelines.

IX. Recommendations

On the basis of above referred findings, it is recommended to improve behavioural assessment practices for children with ASD in Lahore in comprehensive manners. First of all, the educational and clinical institutions are required to work towards the establishment of standardized assessment protocols which can cover behavioural definitions, structured observation formats, and have scheduled reviews with an aim to enhance consistency and accuracy in results. Further, staff members are also required to make a regular professional development in inter-rater reliability of the data collected so that assessments do not rely solely on personal judgment or experience. Moreover, the policymakers and governmental institutions are also required to prioritize the translation, cultural adaptation, and validation of foreign instruments. The lack of Urdu versions and local cultural limits are also required to be considered for accurate diagnosis. The parent involvement should be meaningful. Finally, further research may have its focus on the development of cost-effective,

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culturally appropriate assessment frameworks which could be designed to cover the Pakistan's socio-cultural context keeping in view the resource limitations.

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XI. Appendix A — Semi-Structured Interview Questionnaire

Section A: Participant Information & Informed Consent

Please read the statements below and initial each box to indicate your agreement:

Statement	Initial
I have read the information provided and understand the purpose of this study.	____
I understand that my participation is voluntary and I may withdraw at any time.	____
I consent to the use of my written responses for this research. My identity and institution will remain confidential.	____

Participant Signature: _____

Date: _____

Section B: Background Information

1. **Your current professional role/title:**
2. **Type of institution where you work**
   (e.g., Special Education Centre, Rehabilitation Clinic, Private School, NGO, Autism Centre, etc.)
3. **Years of experience working with children/adolescents with ASD:**
4. **Age group(s) of ASD students you primarily assess:**

Section C: Semi-Structured Interview Guide

Theme 1: Assessment Tools & Practices

Q1. Which formal (standardized) and informal assessment tools (e.g., observation checklists, rating scales) do you currently use to evaluate behavioural outcomes and intervention progress for students with ASD?

Q2. Are there any assessment tools you would like to use but cannot, due to cost, copyright restrictions, translation issues, or lack of training?

Theme 2: Data Collection Methods & Application

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Q3. Describe your process for collecting behavioural data. Do you track frequency, duration, intensity, or latency? What practical challenges do you face in collecting reliable data?

Q4. How do you involve parents/caregivers in the data collection process? How do you ensure consistency between home and centre reporting?

Theme 3: Reliability & Validity Concerns

Q5. When more than one staff member observes the same behaviour, how do you ensure they record the same information and agree on what they saw?

Q6. What challenges do you face in determining whether Western-developed behavioural scales are valid for Pakistani students with ASD?

Theme 4: Cultural & Ethical Appropriateness

Q7. How do local cultural norms and family values influence which behavioural outcomes you prioritize for students with ASD?

Q8. After completing an assessment, how do you communicate results and intervention plans to families in a culturally sensitive and understandable manner?