

The Utility of the Griffiths III Developmental Assessment Tool in Evaluating Children with ASD in India

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Abstract

This observational cohort study investigated the utility of the Griffiths III developmental assessment tool in evaluating children with ASD in India, with a focus on identifying developmental profiles. ASD is a neurodevelopmental disorder characterised by impairments in social communication, restricted interests, and repetitive behaviours. The Griffiths III, a widely used developmental assessment tool, provides an overall measure of a child's development across five domains. This study investigated the use of the Griffiths III in assessing children with ASD and examined its potential in identifying developmental profiles. The study examined 100 children aged 1 - 6 years diagnosed with ASD using ADOS-2 and/or DSM-V criteria. Developmental assessments were conducted using the Griffiths III, supplemented by caregiver reports and medical records. The study revealed distinct developmental profiles through domain Scaled Score Profiles. Notable findings included atypical patterns in task attempts and completion compared to typical developmental sequences. The Griffiths III proved valuable in identifying developmental patterns and informing intervention strategies in children with ASD. These findings suggest the tool's effectiveness in both initial assessment and monitoring developmental progress in children with ASD within the Indian context.

Keywords

Autism Spectrum Disorder, Griffiths III, Developmental Assessment, India, Intervention Planning

1. Introduction

The assessment of children with Autism Spectrum Disorder (ASD) presents unique

challenges in developmental paediatrics, because of its heterogeneity and chronogeneity (Lord & Bishop, 2015). Chronogeneity refers to the study of the heterogeneity of autism in relation to the dimension of time, which is not always captured in the assessment process (Shulman et al., 2020). Specialized instruments such as the Autism Diagnostic Observation Schedule-2 (ADOS-2) remain the gold standard for ASD diagnosis (Luyster et al., 2009); however, there is a growing recognition of the need for comprehensive developmental profiling. Autism evaluation is a dual process that involves diagnosing and evaluating autism and differentiating it from other developmental disorders (Filipek et al., 2000). A comprehensive developmental evaluation is recommended by the American Academy of Neurology. There is no specific recommendation for which diagnostic tool should be used for a comprehensive developmental profiling of the child.

Certain studies demonstrate the use of various developmental assessment tools for assessing the developmental profile of children diagnosed with ASD. The study using the Mullen Scales of Early Learning (MSEL) (Mullen, 1995), which is a developmental test from birth to 68 months of age, made a meaningful contribution to understanding how standardised assessments can be effectively used with young children with ASD, while acknowledging and accounting for behavioral challenges (Akshoomoff, 2006). Given the increasing interest in the early identification and development of young children with autism spectrum disorders, the MSEL was used as a measure of cognitive and/or language skills in research protocols. Landa and Garrett-Mayer's longitudinal study on development in infants with ASD and early developmental patterns in ASD highlights the importance of monitoring development closely during the second year of life. This shows a difference in the developmental trajectory of these children (Landa & Garrett-Mayer, 2006; Werner et al., 2005). Werner et al.'s study, in addition, added that the social and regulatory symptoms emerged between three and six months, and the communication/repetitive behaviours emerged between 10 and 12 months. The validity of using MSEL in ASD is supported in this study (Swineford et al., 2015).

The Bayley-III has been found to be an effective tool for assessing cognitive and language development in children with ASD, and the author suggests further research to enhance our understanding of the diverse manifestations of ASD, ultimately leading to improved treatment and prevention strategies (Torras-Mañá et al., 2016). The Battelle Developmental Inventory 3rd (BDI-3) (Newborg, 2020) is widely used for the assessment of children with a wide variety of disorders but requires the additional application of latent profile analysis (Elbaum & Celimli-Aksoy, 2017; Troxel et al., 2024). The Griffiths Scales (Griffiths Development Scales-China) are recognized for reliability and validity in children with ASD (Li et al., 2020). There is growing recognition also for the use of the Griffiths Child Development Scales 3rd Edition (Griffiths III), especially for the evaluation of the developmental profile (Lecciso et al., 2025; Ciriogliaro et al., 2025; Taddei et al., 2023; Jansen et al., 2020; Martelli et al., 2025).

This article captures the Griffiths III developmental profile of children diagnosed with ASD, which helps in the planning of Individualised Educational Programs and, moreover, captures the heterogeneity of the disorder. The Griffiths III has emerged as a valuable complementary tool for understanding the broader developmental profile of children with ASD.

The Griffiths III provides a structured evaluation across five distinct developmental domains: Foundations of Learning, Language and Communication, Eye-Hand Coordination, Personal-Social-Emotional, and Gross Motor. Each domain contains construct-specific items arranged by age bands, allowing for a detailed analysis of both developmental achievements and variations. This age-specific construct approach is particularly valuable as it reveals the heterogeneous nature of development in children with ASD, complementing rather than replacing the diagnostic specificity of tools like ADOS-2.

A key strength of the Griffiths III lies in its ability to capture developmental variability within and across domains. These variations, particularly in areas such as Personal-Social-Emotional and Language and Communication, provide valuable insights that parallel the nuanced observations made through ASD-specific diagnostic tools. The standardized nature of Griffiths III enables quantitative assessment of developmental patterns and comparison with age-matched peers, making it particularly valuable for tracking developmental trajectories.

The comprehensive nature of Griffiths III addresses an important gap in ASD assessment. While ASD-specific tools excel at confirming diagnosis and identifying characteristic social-communication patterns, Griffiths III provides crucial information about broader developmental functioning across multiple domains. This comprehensive profiling is essential for intervention planning and monitoring progress.

In this study, we analyzed data from 100 children with ASD, selected from a larger clinical database, who were assessed using both Griffiths III and confirmed through ADOS-2 or DSM-V criteria. This dataset provides valuable insights into the complementary nature of these assessment tools and their role in developing comprehensive intervention strategies.

The study aimed to investigate the performance of children in India diagnosed with Autism Spectrum Disorder (ASD). The specific objectives were to:

- Analyze the performance of children with ASD across the five Griffiths III subscales.
- Compare the average performance per subscale and between year groups of children with ASD.
- Identify specific areas of strength and challenge in ASD profiles compared to typical developmental patterns in the Griffiths III standardization sample.

2. Materials and Methods

The ASD sample consisted of 100 consecutive children seen at Ravivandra Maruthuvagam, India, with ages ranging from 15 to 69 months. The sample comprised

12 children in Year 2, 36 in Year 3, 31 in Year 4, 17 in Year 5, and 4 in Year 6. The average age was 38.01 months ($SD = 12.35$). Children with other developmental disorders were excluded from the study.

All children were assessed using the Griffiths Child Development Scales, 3rd edition (Griffiths III), calculating scaled scores for each of the 5 subscales. For comparison, the Griffiths III 2016 standardisation dataset provided age-matched typical development data.

ASD was diagnosed in all 100 children according to DSM-5 criteria. In 72 children, the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2), module was additionally administered to corroborate the clinical diagnosis. The remaining 18 children were diagnosed on the basis of DSM-5 clinical criteria. All assessments were conducted by Dr. Ezhilmangai Ravichandran Poorani, Developmental and Behavioural Paediatrician, who holds ADOS-2 research reliability certification.

Griffiths III Quartile Charts were used to display developmental performance across age groups.

Data Analysis:

For objective one, the performance of 100 children with ASD was visually plotted along the five Griffiths III subscales to check for patterns of performance and the possibility of similarity or difference from the standardisation sample.

The second objective used two-tailed paired sample t-tests to investigate whether differences in average performance were present in Scaled Scores (SSs) between the different test subscales, as well as within each subscale. Differences between year groups were explored using independent sample t-tests. The practical significance of the results was explored using Cohen's d .

For the third objective, 68 cases with complete test results in the ASD dataset were used. Assessing children with ASD poses challenges, which occasionally result in incomplete test items, thus impacting full-scale calculations. While slightly incomplete protocols are still usable for ASD-specific analyses, accurate comparison with the standardization sample requires complete test results, thus resulting in 68 cases. Scaled scores ranging from zero to 20 were calculated for each child, and the Base Rates table from the Griffiths III was used to identify the number of children with test performances that differed significantly between two subscales. These figures were compared to 340 children (within the same age band as the study sample) from the Griffiths III standardization sample to see if the performance of the children in the two samples differed or not. Chi-square analyses were performed for statistical significance with subsequent Cramer's V for practical significance.

This study was conducted in a private clinical setting. Formal institutional ethics review was not applicable; however, the study was carried out in accordance with the ethical principles of the Declaration of Helsinki. Written informed consent was obtained from the parent or legal guardian of each participating child prior to assessment.

3. Results

3.1. Objective 1: To Analyze the Performance of Children with ASD across the Five Griffiths III Subscales

The radar chart (**Figure 1**) illustrates the developmental profiles of three different children (neurotypical development, global developmental delay, and autism spectrum disorder) on the Griffiths' analysis. The visualization reveals clear differentiation in developmental patterns between these children.

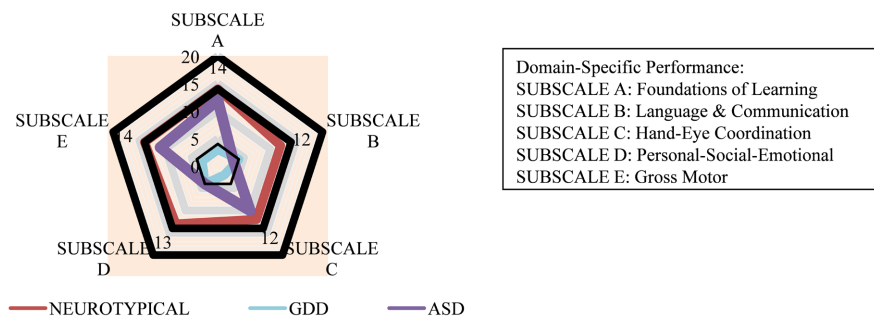


Figure 1. Radar chart showing the scaled scores achieved on the five Griffiths subscales by three different children.

Children with global developmental delay demonstrated uniformly reduced performance across all five Griffiths III subscales compared to the neurotypical reference group. In contrast to this group, children with ASD also exhibited a characteristic heterogeneous profile with domain-specific variations. Performance in gross motor, fine motor, and cognitive domains approximated neurotypical levels, while social and language domains showed marked impairments compared to those observed in children with global developmental delay.

This differential pattern highlights the distinctive developmental phenotype associated with ASD, characterized by relative preservation of motor and cognitive abilities alongside significant challenges in social communication domains. The radar chart visualization effectively captures these profile differences, demonstrating the clinical utility of this assessment approach in identifying domain-specific strengths and areas of need in children with ASD.

3.2. Objective 2: To Compare the Average Performance per Subscale and between Year Groups of Children with ASD

After initial mean calculations, two-tailed paired sample t-tests were used to check for significant differences in performance in children with ASD. **Table 1** presents the mean SS per year.

The data reveal a concerning pattern of declining performance with increasing age across most domains. This suggests that children with ASD may be falling further behind their neurotypical peers as they get older, rather than maintaining consistent developmental trajectories.

Further investigations focused on differences between subscales for each year

group, and differences between years within each subscale ($p < 0.05$). **Table 2** presents the significance of the differences between subscales.

Table 1. Subscale mean scaled scores for children with ASD (n = 100).

Year	A	B	C	D	E
2	6.58	1.17	5.75	1.92	9.00
3	5.94	0.53	4.75	1.44	7.17
4	3.06	0.65	3.03	1.23	3.26
5	1.12	0.12	2.06	0.06	2.12
6	1.50	0.00	3.25	2.00	3.75

Table 2. Differences between subscales by year group.

	A & B	A & C	A & D	A & E	B & C	B & D	B & E	C & D	C & E	D & E
Yr 2	S***	NS	S***	S**	S***	NS	S***	S***	S***	S***
Yr 3	S***	S*	S***	S*	S***	S**	S***	S***	S***	S***
Yr 4	S***	NS	S**	S**	S***	S*	S***	S**	NS	S***
Yr 5	S***	S**	S***	S*	S***	NS	S***	S***	NS	S***
Yr 6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

*Small effect; **Medium effect; ***Large effect.

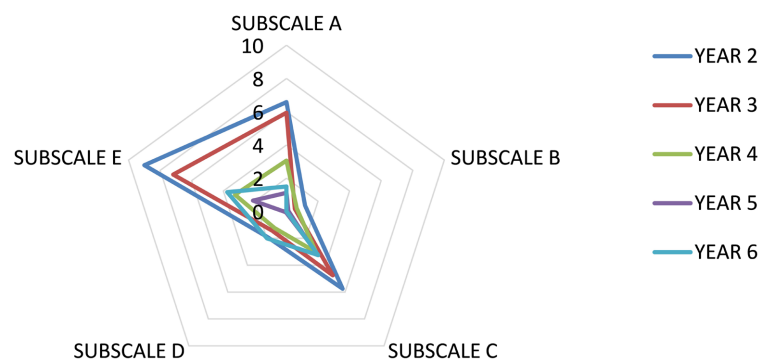


Figure 2. Radar chart showing the developmental trajectories of ASD children aged 2 - 6 years across Griffiths III subscales.

The radar chart (**Figure 2**) presents a comprehensive visualization of the developmental trajectories of ASD children aged 2 - 6 years across the five Griffiths III subscales. This format effectively demonstrates the differential impact of chronological age on specific developmental domains. This chart reveals distinct patterns of age-related decline across subscales. Subscale E (Gross Motor Skills) demonstrates the most pronounced deterioration, beginning with the highest performance at age 2 and showing a dramatic decline through subsequent years. Similarly, Subscale A (Foundations of Learning) exhibits a steep declining trajectory from relatively strong early performance to critically low levels by ages 5 - 6.

In contrast, Subscales B (Language & Communication) and D (Personal-Social-Emotional) maintain consistently low performance across all age groups, with Subscale B approaching floor effects. Subscale C (Eye-Hand Coordination) shows the most stable trajectory, maintaining moderate performance levels across the age span.

This radar chart format effectively illustrates the heterogeneous nature of developmental decline in ASD, highlighting that while some domains show dramatic age-related deterioration, others remain consistently impaired from early ages. It overall supports the critical importance of early intervention.

Year 6 had no statistically significant differences, but that is unsurprising given the small sample ($n = 4$). All subscales showed significant mean SS differences between subscales, with only a few instances of non-significant differences, particularly between subscales A and C, C and E, and B and D. Large effect sizes were found between subscales A and B, B and C, B and E, as well as D and E across all the year groups, excluding Year 6. **Table 3** below indicates the differences within subscales across year groups.

Table 3. Significant differences across year groups according to the subscale.

Year	3	4	5	6
2	NS	A, C, E	A, C, E	A, E
3		A, C, E	A, C, E	A, E
4			A, D	NS
5				D

Table 3 indicates no statistically significant differences in any subscales between years 2 and 3, and years 4 and 6. Where differences existed, they primarily included Subscale A and E, and to a slightly lesser extent, combined with Subscale C. Subscale D featured only twice in between-year differences, whilst Subscale B presented no significant differences in average SS.

In terms of overall development status, the Griffiths III General Development (GD) quotient provided interesting results. GD is derived by averaging the five Subscale raw scores. This average GD raw score is interpreted using its own norm tables to provide an indication of general development. For the ASD sample, 67% of children scored in the “extremely low” range, 16% were “below average”, 13% fell in the “borderline” category, and only 4% achieved “average” scores. This indicates high levels of developmental delays.

3.3. Objective 3

A Griffiths III test development profile reveals the peaks and valleys of children’s performance in different developmental domains. Objective 3, therefore, considered the performance of the ASD sample against children of their age from the test standardisation sample to analyse if children in the two samples performed differently across subscales. The Griffiths III Base Rates table was used to determine

if each child's performance showed a significant difference or not between two subscales. To demonstrate this analysis, the categorical difference in performance between Subscales A and B will be used.

Table 4. Significant differences in performance between subscales A and B.

Categories	India ASD (n)	Standardization (n)
Significant difference	49 (72%)	37 (11%)
No significant difference	19 (28%)	303 (89%)

$\chi^2 = 127.486$, $p < 0.00001$, $v = 0.56$ (large effect).

According to **Table 4**, 72% of children in the ASD sample had a significant difference in performance between Subscales A and B, compared to only 11% of children in the standardisation sample. The chi-square analysis indicated that this difference in performance trends was significant and had a large practical effect. This highlighted that the children with ASD performed significantly differently compared to children from the standardisation sample. The differences in performance between subscales are presented in **Table 5**.

Table 5. Significant differences in performance between Griffiths III subscales.

Subscales	B	C	D	E
A	S***	S*	S**	S*
B		S***	NS	S***
C			S**	S*
D				S***

*Small effect; **Medium effect; ***Large effect.

Table 5 indicates that children in the ASD sample performed differently from the expected differences between subscales for all subtests, except between Subscales B and D. Of the significant differences, four had a large practical effect (A vs B, B vs C and E, D vs E), two had a medium effect (D vs A and C), and three had a small effect (A vs C and E, C vs E). This creates an overall profile of children with ASD performing more similarly on subscales A, C, and E, and on subscales B and D, with these two categories operating separately to a medium or large extent. It indicates that, as expected among children diagnosed with ASD, their developmental test profiles would indicate more peaks and valleys, and in a larger practical sense. The Griffiths III Base Rates tables proved more effective in highlighting significant differences between subscales than using just Scaled Scores. Base rate calculation therefore forms an important aspect of interpreting test performance, especially for children diagnosed with ASD.

3.4. Griffiths III Quartile Chart Analysis

In this study, we utilized Griffiths III quartile charts to analyze developmental performance across the age groups. The quartile charts organize Griffiths III as-

assessment items according to their level of difficulty, as determined by the percentage of typically developing children who successfully achieve each item within their respective age cohorts.

The quartile framework is structured as follows:

- Quartile 1 (Q1): Items achieved by 76% - 100% of typically developing children in their age group, representing skills that are mastered by the vast majority of children at that developmental stage.
- Quartile 2 (Q2): Items achieved by 51% - 75% of typically developing children, indicating skills that are acquired by most, but not all, typically developing peers.
- Quartile 3 (Q3): Items achieved by 26% - 50% of typically developing children, representing skills that are mastered by approximately half of the normative population.
- Quartile 4 (Q4): Items achieved by 1% - 25% of typically developing children, indicating advanced or emerging skills that are accomplished by only a small proportion of typically developing peers.

The performance profiles of four children from different age groups were plotted against these quartile benchmarks to provide a comprehensive analysis of their developmental patterns relative to normative expectations.

The quartile charts presented depict the developmental profiles of three children of varying ages, all diagnosed with Autism Spectrum Disorder (ASD). Each chart displays individual item performance, with green dots indicating successfully completed items and red dots representing items that were not achieved.

In typical developmental assessments, basal and ceiling levels are established through consecutive item successes and failures, respectively. However, the performance patterns observed in these four children with ASD demonstrate a characteristic phenomenon known as developmental patchiness or scatter.

This patchiness is evidenced by the non-sequential distribution of passed and failed items across the quartile levels. Rather than displaying the expected hierarchical pattern, where easier items (Q1) are consistently passed before more difficult items (Q4), these children exhibit irregular performance profiles. Specifically, they may successfully complete items from higher quartiles (Q3 or Q4), while simultaneously failing items from lower quartiles (Q1 or Q2) that would typically be mastered by most of their chronological age peers.

This irregular performance pattern is a well-documented characteristic of developmental profiles in children with ASD, reflecting the uneven nature of skill acquisition across different developmental domains. The visualization of this patchiness through quartile charts will, in future studies, provide valuable insight into the heterogeneous developmental trajectories commonly observed in this population.

4. Discussion

This paper examines the information provided by an assessment using Griffiths III in a group of children diagnosed as within the autism spectrum by ASD-spe-

cific tools. Griffiths III can build a specific developmental profile for a child directly from the test items passed or failed, as well as provide quantitative scores for a single subscale and qualitative construct-related information from disaggregated scores.

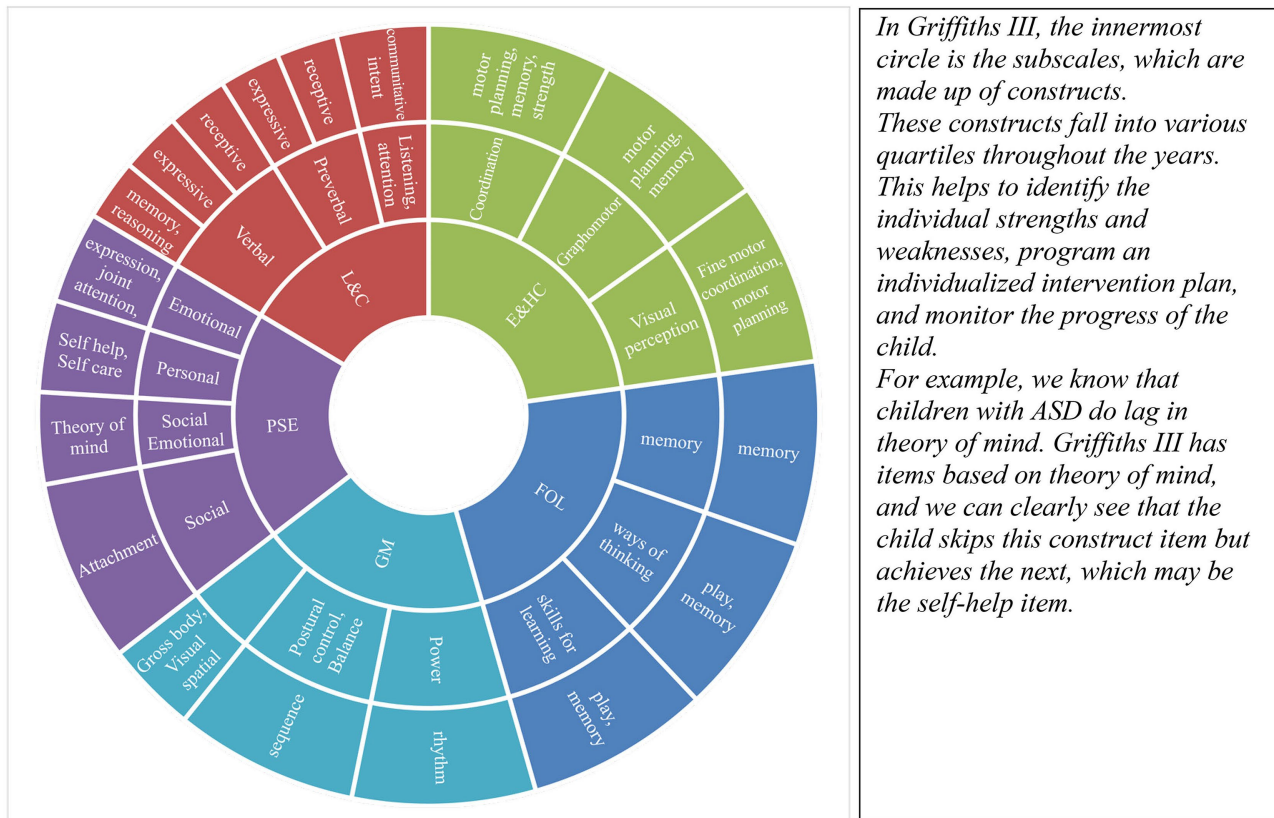


Figure 3. Griffiths III constructs and subscales.

Learning and cognitive processes in autism present a fascinating paradox. While individuals with autism often demonstrate strong capabilities in certain cognitive areas, they face unique challenges in integrating and applying these abilities. This can be analysed using the Griffiths assessment, which is built upon items that analyse these specific areas. The above pie diagram (**Figure 3**) gives a snapshot of how it is constructed.

Memory functions as the storage and retrieval system for learned information. Analytical skills enable the appropriate application of learned knowledge in various contexts. The strengths in individuals with ASD are their remarkable memory capabilities, which, for example, are evidenced through strong route memory (the ability to remember specific paths and sequences) and immediate and delayed echolalia. Despite these strengths, the key challenges are contextual application, social timing of understanding when and where to use the learned behaviours or language, and generalisation, which means transferring learned skills from one situation to another.

Understanding which domains are affected in a disorder, such as ASD, is crucial

because impairments in one domain can influence others. The development of these domains is interconnected. Identifying which part of the brain is impacted allows for targeted interventions that can help normalize other domains. It is equally important to assess whether a specific item within a domain is affected due to the core impairments of the disorder itself. For example, if a child's performance on a task relies on skills like imitation, which are often impaired in ASD, it is necessary to consider whether the child is scoring well in spite of these specific impairments, rather than typical functioning. This distinction helps in understanding the true nature of the child's abilities and challenges.

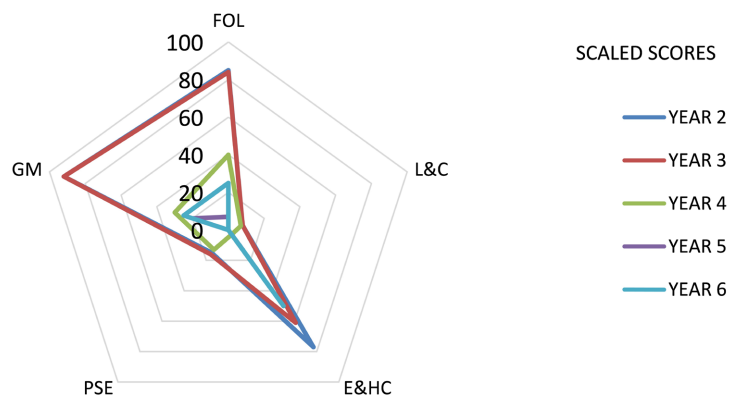


Figure 4. Scaled scores—radar chart.

In the above radar chart (**Figure 4**), we visualize the Foundations of Learning to be appropriate for the age in year 2 and year 3, which progressively decrease as the child's age increases. There might be several factors that play a role in this. As the foundational skills become integrated into higher-order and more complex abilities, there appear to be particular challenges for children with communication delays. Impaired comprehension of “W” questions and reliance on stereotyped question-answer patterns create specific barriers to tasks requiring flexible verbal understanding, such as directional table navigation, series completion, the dressing teddy task, and numeracy items.

4.1. Importance of Disaggregation of Data

The Griffiths III results indicate that the majority of children with ASD in this sample (96%) demonstrate overall developmental delays. Similarly, while using the MSEL, the child's early learning composite will likely fall below the centiles, as it is the domain measurements' aggregated score. Of the 8 tests used across infancy and early childhood, 3 use the term “intelligence quotient” (Stanford Binet V, WPPSI-III, Cattell), 3 use the term “composite” (Bayley Scales of Infant Development-III, Mullen Scales, K-ABC/2), whereas the term “general cognitive” is used by 2 (McCarthy Scales, DAS/II) (Aylward, 2009).

Though in the early years, cognitive ability is determined by the domains of development, having separate items to measure the child's cognitive ability helps

us focus on where the intervention needs to be based. This is where disaggregated data is helpful. The Griffiths III gives us domain-specific scores. It is useful because the cognition skill is notably appropriate for these children until year 3. In years 4 to 6, cognition is still better than in the language and social subscales.

4.2. Griffiths III Quartile Charts for Qualitative Analysis of Constructs

In addition, the Griffiths scale goes one step above by giving us a quartile chart. The quartile chart enhances the developmental measurement process by evaluating atypical children whose scores fall below the 50th Developmental Quotient and the 1st percentile. The charts serve two crucial functions—they show the age at which typically developing children master specific skills, and they identify which developmental milestones remain unachieved across different domains. This qualitative approach represents a significant improvement over the quantitative system, which simply indicated performance below the 1st percentile. While that earlier method may have been sufficient for practitioners, it provided little practical guidance to parents and educators who needed specific information to support these children's development.

4.3. Dynamic Assessment

Dynamic assessments are important to determine the trajectory that a child with the specific disorder follows. This plays an important role in understanding the disorder as well as in planning the intervention. The results of this analysis have several important implications for intervention planning and service provision for children with ASD. Since early diagnosis can lead to early intervention, which can result in better outcomes for young children, guidelines for best practice for the process of screening for ASD were established in 2000 by a task group of ASD professionals (Filipek et al., 2000). The effectiveness of early intervention depends heavily on the precise targeting of specific developmental domains and constructs that require support.

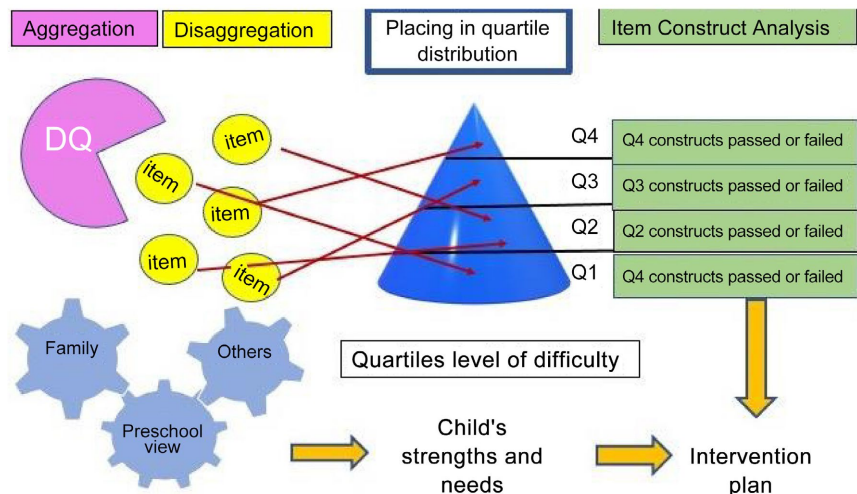
4.4. The Complementary Nature of the Griffiths Scales

Griffiths complements, rather than replaces, the gold standard diagnostic assessment tool, the ADOS-2.

The individual's developmental and speech levels are considered in choosing the correct module; the issues that arise during the assessment are then not the result of developmental delay or language and speech limitations (Shulman et al., 2020). To select which module is to be used, Griffiths III assists. Thus, for a child with speech delay and visual impairment, this may lead to an ADOS-2 false positive. Clinical judgement might vary, so having a developmental profile of the child would be ideal before conducting an autism diagnostic evaluation.

While various assessment tools provide developmental data, the Griffiths stand out for their comprehensive breakdown of developmental areas. This detailed anal-

ysis makes the Griffiths particularly valuable not only for initial assessment but also for designing targeted interventions and monitoring progress over time (Jansen et al., 2020; Colombi et al., 2023; Abdelmoneim et al., 2025; Tuiskula et al., 2025). The tool's ability to provide granular insights into different developmental domains helps practitioners create more focused and effective early intervention strategies tailored to each child's specific needs. See **Figure 5**.



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Figure 5. Construct analysis from disaggregated test items enables a targeted intervention plan.

4.5. An Individualized Approach

The significant variability observed across domains, particularly in cognitive and motor skills, emphasizes the need for individualized assessment and tailored intervention plans that address each child's unique profile of strengths and challenges.

4.6. The Intervention Plan Should Provide Cognitive Stimulation

Given the wide range of cognitive abilities observed, interventions should be carefully matched to each child's cognitive level, with opportunities for cognitive stimulation and growth provided across the spectrum of abilities.

Once an accurate diagnosis is obtained, understanding can begin to lead toward treatment and enhance the likelihood of positive outcomes for children with ASD and their families. Although diagnosis can be established earlier than ever before, several issues remain underaddressed. The issues raised throughout this article deal with the need for knowledge and training in development and mental health in general, and in ASD specifically, which requires not simply training in the use of gold standard instruments but also in understanding ASD, as well as the overlap with other possible conditions, which may require dual diagnosis or differential diagnosis.

5. Conclusion

This analysis of Griffiths III scores in children with ASD reveals a complex picture of developmental strengths and challenges. While pervasive difficulties in language, communication, and social-emotional skills are evident, considerable variability exists in cognitive and motor domains. These findings underscore the heterogeneous nature of ASD and the critical importance of comprehensive, individualised assessment and intervention planning. By understanding the nuanced developmental profiles of children with ASD, clinicians and educators can better tailor their approaches to support optimal outcomes for this diverse population.

Key Points:

- Access to disaggregated data ensures equitable evaluations and empowers interventionists to enact targeted interventions, promoting comprehensive development.
- Griffiths complements, rather than replaces, the gold standard diagnostic assessment tool, the ADOS-2.

Limitations and Future Directions

While this analysis provides valuable insights into the developmental profiles of children with ASD, several limitations should be noted.

1) Cross-Sectional Nature: The data represent a single time point for each child, limiting our ability to draw conclusions about developmental trajectories. Longitudinal studies would provide more robust information about patterns of change over time.

2) Comorbidities: The presence of co-occurring conditions, which are common in ASD, was not accounted for in this analysis and could influence the observed patterns of strengths and challenges.

3) A possible weakness of using a developmental test standardized in the UK and Ireland with a standardization sample of typically developing children is that an assumption is made that the normative scores of development of a group of children with ASD living in India can be usefully compared to the normative scores of a group of typically developing children living in the UK and Ireland. The use of disaggregated data and a qualitative approach is part of the analysis. It has been found that adding some children with disabilities to a standardization sample lowers the sensitivity of the test (Peña et al., 2006).

Future research directions suggested by this analysis include:

1) Longitudinal Studies: Tracking developmental trajectories over time to better understand patterns of change and stability across domains.

2) Intervention Efficacy: Investigating the impact of specific intervention approaches on Griffiths III scores across domains.

3) Subgroup Analysis: Exploring potential subgroups within the ASD population based on patterns of strengths and challenges across developmental domains.

4) Predictive Factors: Examining early predictors of later outcomes, particularly focusing on children who show relative strengths in certain domains.

5) Comparative Studies: Comparing Griffiths III profiles of children with ASD to those with other neurodevelopmental disorders to identify ASD-specific patterns. It is essential to have standardized norms for individuals with typical and atypical development and other overlapping conditions.

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Authors' Contributions

RPE: Conceptualization, methodology, investigation, writing—original draft preparation, project administration.

EG: Conceptualization, methodology, writing—review, and editing.

JC: methodology, formal analysis, data curation.

All authors have read and agreed to the published version of the manuscript.

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Informed Consent Statement

Informed consent was obtained from the parents of all children involved in the study.

Data Availability Statement

Data supporting the reported results is not available at present due to the continuing research project.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Abbreviations

The following abbreviations are used in this manuscript:

ASD: Autism Spectrum Disorder

ADOS-2: Autism Diagnostic Observation Schedule-2

DSM-V: Diagnostic and Statistical Manual of Mental Disorders-5