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CLINICAL AND COGNITIVE PROFILES OF CHILDREN REFERRED FOR POOR MEMORY AND ACADEMIC DIFFICULTIES: A RETROSPECTIVE CASE SERIES FROM BANGLADESH

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Abstract

Children are frequently referred to psychological services for complaints of poor memory and academic underachievement, yet such complaints often reflect broader cognitive difficulties rather than isolated memory impairment, particularly in low-resource settings. This study examined the clinical and cognitive characteristics of 12 children aged 6–14 years referred for poor memory and academic difficulties at a tertiary child development center in Bangladesh. Using a retrospective case series design, data from clinical records included demographic information, caregiver-reported complaints, WISC-IV cognitive assessments, and diagnostic formulations. Quantitative data were analyzed descriptively; qualitative thematic analysis was applied to clinical narratives. The mean Full Scale IQ was 57.50, with 58.3% meeting criteria for Intellectual Disability. Although 41.7% of caregivers reported poor memory as a primary concern, objective working memory impairment was identified in only half of the cases. Memory complaints more commonly reflected global intellectual limitations, slow processing speed, or reduced verbal comprehension. Qualitative themes included cumulative academic failure, delayed help-seeking, curricular-cognitive mismatch, and preserved adaptive strengths. Caregiver-reported poor memory among children referred for academic difficulties often serves as a non-specific label for broader intellectual challenges. Integrating standardized cognitive assessment with careful interpretation of caregiver narratives is essential for accurate diagnosis and educational planning in low-resource settings.

Keywords: *intellectual disability, academic difficulties, memory complaints, WISC-IV, retrospective case series.*

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1. INTRODUCTION

Worldwide, caregivers' concerns about their children's memory difficulties consistently rank as a leading cause of psychological referral (Alloway, 2009; Deary et al., 2007). In clinical practice, however, such complaints rarely indicate isolated memory impairment. Instead, they typically reflect broader cognitive or developmental challenges that interfere with learning (Baddeley, 2000; Swanson & Alloway, 2012). This distinction carries special importance in resource-limited environments, where restricted availability of standardized evaluation tools often results in extended periods of educational misalignment. The present study examines whether caregiver-reported memory complaints in a Bangladeshi clinical sample correspond to objective working memory deficits or to broader intellectual limitations.

Intellectual Disability (ID) and borderline intellectual functioning represent significant yet frequently under-recognized contributors to academic underachievement in childhood. ID is defined by significant limitations in both intellectual functioning (typically IQ below 70) and adaptive behavior, with onset during the developmental period (American Psychiatric Association [APA], 2022). Borderline intellectual functioning (IQ range 70–85), while not meeting full diagnostic thresholds, similarly places children at elevated risk for persistent academic difficulties when educational expectations exceed cognitive capacities (Giofrè, Toffalini, & Cornoldi, 2021). Global ID prevalence is estimated at approximately 1%, with disproportionate burden in low- and middle-income countries (LMICs) due to limited early screening infrastructure (World Health Organization [WHO], 2023). Many children with mild to moderate ID remain unidentified until they encounter formal education (Olusanya et al., 2020).

In clinical practice, caregivers rarely present with complaints of "low IQ." Instead, they commonly report that their child has "poor memory," "cannot retain lessons," or "forgets what is taught in school" (Alloway, 2009; Deary et al., 2007). This discrepancy between caregiver-reported memory problems and objective cognitive profiles has received limited empirical attention, particularly in low-resource settings where access to standardized assessment is constrained. This study introduces the concept of the "memory mismatch phenomenon" to describe the common clinical scenario where caregiver-reported memory complaints do not correspond to isolated working memory deficits on standardized assessment. Instead, such complaints often reflect broader intellectual limitations affecting multiple cognitive domains.

Several mechanisms explain this mismatch. First, caregivers observe functional academic failures and intuitively attribute these to memory failure, as memory is the most visible cognitive process involved in learning (Hossain, Rahman, & Khan, 2022). Second, cultural emphasis on rote memorization in South Asian educational systems leads caregivers to equate academic success with memory capacity (Islam, Rahman, & Ahmed, 2023). Third, stigma surrounding ID may lead caregivers to prefer the less stigmatizing label of "memory weakness" (Ghouri & Khan, 2020). Children with global intellectual limitations require different interventions (curricular modification, functional skill development) than those with isolated working memory deficits (memory strategy training). Misattributing global ID to "poor memory" delays appropriate educational placement.

Bangladesh, a lower-middle-income country with over 170 million people, faces substantial challenges in identifying children with ID. Recent national data indicate neurodevelopmental disorder prevalence of approximately 1.7%, affecting nearly 3 million children (Bangladesh Bureau of Statistics [BBS], 2022). However, most remain undiagnosed. The country has fewer than 100 child psychologists, concentrated in Dhaka, with no formal school psychology cadre. Approximately 20% of children attend Madrasas, which have fewer resources for identifying difficulties (BBS, 2022). Grade repetition affects 30% of children by age 12, but repetition rarely includes diagnostic assessment (UNESCO, 2024). Stigma leads caregivers to avoid disability labels, instead using proxies like "poor memory" (Islam et al., 2023). Only 23% of Bangladeshi caregivers correctly identify ID symptoms, and fewer than 10% know specialized assessment is available (Islam et al., 2023). Many caregivers initially attribute delays to "late blooming," seeking assessment only after prolonged failure (Walker et al., 2011). Consequently, by the time children reach tertiary assessment, they have typically experienced years of academic failure, with mean age 9.45 years despite difficulties evident from early primary grades.

A central argument is that "poor memory" as a caregiver complaint is not equivalent to any specific deficit or diagnosis. Subjective complaints identify that a problem exists but cannot specify its cause. Cognitive deficits are objectively measured impairments on standardized indices (low working memory, low processing speed, low verbal comprehension, or low perceptual reasoning). Diagnostic entities (ID, borderline functioning, ADHD, SLD) require evidence of functional impairment and developmental history. Standardized cognitive assessment allows empirical distinction among these possibilities.

Despite increasing recognition of the multidimensional nature of learning difficulties, a critical gap persists between caregiver-reported concerns and objective cognitive assessment outcomes. This gap is especially pronounced in low-resource settings, where referral decisions often rely on subjective interpretation rather than standardized evaluation. The tendency to attribute academic difficulties primarily to "poor memory" may obscure broader cognitive limitations, leading to delayed diagnosis and ineffective intervention. In Bangladesh, the lack of context-specific empirical research examining the relationship between presenting complaints and cognitive assessment findings further compounds this issue. Therefore, there is a pressing need to systematically investigate how caregiver perceptions of memory difficulties align with standardized measures of cognitive functioning.

2. OBJECTIVES

General Objective

To examine the clinical, cognitive, and educational characteristics of children referred for psychological assessment due to concerns related to poor memory and academic difficulties at a tertiary child development center in Bangladesh.

Specific Objectives

1. To describe the demographic and educational profile of children presenting with complaints of poor memory and academic underachievement.
2. To identify the pattern of presenting complaints that lead to psychological referral.

3. To examine cognitive profiles based on standardized intelligence assessment, including overall intellectual functioning and specific cognitive domains.
4. To determine the diagnostic outcomes associated with referrals for poor memory and academic difficulties.
5. To explore the correspondence between parental reports of poor memory and objectively assessed cognitive and diagnostic findings.
6. To synthesize recurring clinical and educational narratives observed across cases through qualitative thematic review of clinical records.

3. METHOD

3.1 Study Design

This retrospective case series examined children referred for poor memory and academic difficulties at a tertiary child development center in Bangladesh. The case series design is appropriate for exploratory research in under-resourced settings where prospective data are limited (Dekkers et al., 2012; Vandenbroucke, 2001).

3.2 Participants

Clinical records of 12 children (N = 12) aged 6–14 years were included. Inclusion criteria were: (a) referral primarily for poor memory, poor academic performance, or learning difficulties; (b) completion of standardized cognitive assessment using the Wechsler Intelligence Scale for Children—Fourth Edition (WISC-IV); and (c) complete clinical records including demographic, cognitive, and diagnostic information. Exclusion criteria were: (a) academic difficulties primarily attributable to uncorrected sensory impairment; (b) acute neurological illness; or (c) incomplete records.

3.4 Measures

Cognitive Assessment: Intellectual functioning was assessed using the WISC-IV, which yields a Full Scale IQ (FSIQ) and four index scores: Verbal Comprehension (VCI), Perceptual Reasoning (PRI), Working Memory (WMI), and Processing Speed (PSI) (Wechsler, 2003). The Bangla adaptation (Huq, 1994) was used; scores were interpreted primarily as intra-individual patterns rather than absolute norms.

Clinical Record Review: A structured checklist extracted demographic variables (age, sex, socioeconomic status, residence), developmental history, educational placement, grade repetition, and caregiver-reported presenting complaints.

Diagnostic Formulation: Diagnoses were based on WISC-IV profiles, clinical evaluation, and DSM-5-TR criteria (American Psychiatric Association, 2022).

3.5 Procedure

All eligible cases meeting inclusion criteria within the study period (June–September 2024) were included. The sample size is consistent with case series methodology, emphasizing detailed clinical characterization rather than statistical generalization (Carey, 2016). Data saturation was achieved, with no new themes emerging in the final three cases.

Quantitative data were analyzed using descriptive statistics (means, frequencies, ranges) in JASP (JASP Team, 2023). Qualitative data from clinical narratives were analyzed using reflexive thematic analysis (Braun & Clarke, 2006).

Institutional approval was obtained. The ethics committee granted a waiver of informed consent for this secondary analysis of de-identified records. All data were anonymized prior to analysis.

4. RESULTS

4.1 A total of 12 children (N = 12) were included in this retrospective case series. Descriptive statistics, Table 1 presents the demographic and clinical characteristics of the sample.

Table 1. Demographic and Clinical Characteristics of the Patients (N = 12)

Demographic Variables	**Percent (%)**
Sex	
Female	41.67%
Male	58.33%
Family Type	
Nuclear	41.67%
Joint	58.33%
Socio-economic Status (SES)	
Lower Class	58.33%
Middle Class	33.33%
Higher Class	8.33%
Presenting Complaints/ Primary Reason for Referral	
Poor Academic	16.67%
Behavioral Issues	41.67%
Poor Memory	41.67%
Suspected ID	25%
Language Difficulty	83.33%
Inattention and Restlessness	58.33%
Difficulties in ADL	58.33%
Living Status	
Urban	41.67%
Rural	58.33%
Educational Placement	
School	50%
Madrasa	33.33%
Home-Based	16.67%
Developmental Delay	
Yes	50%
No	50%
Most Impairment (extremely low level) in Cognitive Profile Test	
Verbal Comprehension Index (VCI)	58.33%
Perceptual Reasoning Index (PRI)	66.67 %
Working Memory Index (WMI)	50%
Processing Speed Index (PSI)	66.67 %
Full Scale IQ	58.33%

Other Medical History	
Seizure or Epilepsy	16.67%
Vision or Hearing Impairment	8.33%
Family History	
Family History of Psychiatric Illness (FHPI)	50%
Consanguinity In Parents	16.67%
Diagnosis	
Borderline IQ	33.33%
Extremely Low IQ	58.33%
Low average IQ	8.33%

Note. Percentages are based on the total sample of 12 patients.

The most common caregiver-reported complaints were language difficulties (83.3%, n = 10), followed by inattention and restlessness (58.3%, n = 7), and difficulties in activities of daily living (58.3%, n = 7). Notably, "poor memory" was cited as a primary complaint in 41.7% of cases (n = 5), equal to the proportion citing behavioral issues. Poor academic performance alone was the primary reason for referral in only 16.7% of cases (n = 2). Additionally, 25.0% of cases (n = 3) were referred with pre-existing clinical suspicion of Intellectual Disability from primary medical providers.

The finding that language difficulties (83.3%) were more common than memory complaints (41.7%) is clinically significant. Caregivers may recognize communication problems as a primary concern, yet frame them as "memory issues" when describing academic struggles. This pattern aligns with cultural emphasis on rote memorization in Bangladeshi schools (Hossain, Rahman, & Khan, 2022), where difficulty retaining information is often attributed to memory rather than underlying language or comprehension deficits.

4.2 Table 2 presents descriptive statistics for WISC-IV indices. The mean Full Scale IQ (FSIQ) was 57.50 (SD = 15.54; range 40–82), placing the average participant more than two standard deviations below the population norm. Based on FSIQ classifications, the majority of children (58.3%, n = 7) scored in the "Extremely Low" range (FSIQ <70), consistent with Intellectual Disability. One-third (33.3%, n = 4) met criteria for Borderline Intellectual Functioning (FSIQ 70–79), and one child (8.3%, n = 1) scored in the Low Average range (FSIQ 80–89).

The mean FSIQ of 57.50 indicates that the sample predominantly comprised children with substantial intellectual limitations rather than isolated cognitive deficits. This finding is consistent with referral bias toward more severe presentations in tertiary care settings (Munir, Lavelle, & Sahu, 2023). The presence of borderline (33.3%) and low average (8.3%) cases, however, demonstrates that "poor memory" complaints are not restricted to severe ID but also affect children who might succeed academically with appropriate support.

Table 2. Descriptive Statistics for Study Variables (N = 12)

Variable	M	SD	Min	Max
Age	9.45	2.77	6	14
Cognitive Profile Test				
Verbal Comprehension Index (VCI)	60.08	13.41	40	81
Perceptual Reasoning Index (PRI)	66.50	16.33	45	88
Working Memory Index (WMI)	68.17	21.20	42	102

Processing Speed Index (PSI)	60.00	19.09	40	88
Full Scale IQ	57.50	15.54	40	82

Note. M = mean; SD = standard deviation; Min = minimum; Max = maximum; higher scores indicate greater levels of the respective construct.

Processing Speed Index (PSI) showed the lowest mean score (M = 60.00, SD = 19.09), followed by Verbal Comprehension Index (VCI; M = 60.08, SD = 13.41). Working Memory Index (WMI) showed the highest mean among the four indices (M = 68.17, SD = 21.20), with one child scoring within the average range (WMI = 102) despite caregiver-reported memory complaints.

The finding that PSI was the most impaired domain (lowest mean score) is clinically significant. Processing speed deficits are less visible to caregivers than memory failures, yet they directly impact academic fluency and task completion (Schubert, Löffler, & Hagemann, 2022). A child who cannot keep pace with classroom instruction may appear forgetful when, in fact, they have not fully encoded the information due to time pressure.

Analysis of impairment frequency (index score <70) revealed that PSI and Perceptual Reasoning Index (PRI) showed the highest rates, each affecting 66.7% of the sample (n = 8). VCI impairment was present in 58.3% (n = 7). WMI impairment was present in exactly half (50.0%, n = 6).

Although caregivers frequently reported "poor memory" as a concern, objective working memory impairment was identified in only half of the cases. In contrast, processing speed and perceptual reasoning deficits—domains less visible to caregivers—were more prevalent. This pattern suggests that caregiver memory complaints may reflect difficulty with information processing speed rather than true mnemonic deficits.

4.3 Table 3 presents a case-by-case comparison of caregiver-reported complaints against objective WISC-IV findings.

Among the five children for whom caregivers cited "poor memory" as a primary complaint, only two (40%) demonstrated impairment specifically in WMI (<70). The remaining three children with memory complaints showed low FSIQ (<70) with impairments across all domains, indicating that perceived memory problems reflected global intellectual limitations rather than isolated working memory deficits.

Overall, only 16.7% of memory complaints corresponded to isolated working memory deficits, while 83.3% reflected global ID or other domain-specific deficits. This discrepancy—termed the "memory mismatch phenomenon"—has several explanations. First, caregivers observe functional academic failures and intuitively attribute these to memory, the most visible cognitive process (Hossain et al., 2022). Second, cultural emphasis on rote memorization leads caregivers to equate academic success with memory capacity (Islam, Rahman, & Ahmed, 2023). Third, stigma surrounding ID may lead caregivers to prefer the less stigmatizing label of "memory weakness" (Ghouri & Khan, 2020).

Table 3. Comparative Analysis of Caregiver Presenting Complaints/ Primary Reason for Referral versus Objective Psychometric Findings (N=12)

Child	Main Complaint/	Source of Main Complaint	Other Parental Complaints	Objective WISC-IV Index Finding	Clinical Diagnostic Outcome	Memory Match?

	Primary Reason for Referral			(Lowest Score)		
C1	Poor memory	Caregiver/Parent	Language, Attention	VCI	Low Average IQ	No (VCI deficit)
C2	Suspected ID	Previous Medical Referral	ADL, Behavior, Language	WMI	Extremely Low IQ	Yes (global ID)
C3	Poor Academic	Caregiver/Parent	Attention, Behavior, Bedwetting	PSI	Borderline IQ	No (PSI deficit)
C4	Poor Academic	Caregiver/Parent	Memory, ADL, Language	FSIQ	Extremely Low IQ	No (global ID)
C5	Suspected ID	Previous Medical Referral	ADL, Attention, Language	FSIQ	Extremely Low IQ	Yes (global ID)
C6	Poor Academic	Caregiver/Parent	ADL, Behavior, Language	PSI	Extremely Low	No (PSI deficit)
C7	Poor Memory	Caregiver/Parent	ADL, Language, Drooling	FSIQ	Extremely Low IQ	Yes (global ID)
C8	Behavior Problem	Caregiver/Parent	Academic, Attention, Language	WMI	Borderline IQ	Yes (isolated WMI)
C9	Poor Memory	Caregiver/Parent	Attention, Language	PRI	Borderline IQ	No (PRI deficit)
C10	Behavior Problem	Caregiver/Parent	Attention, Language	VCI	Extremely Low IQ	No (VCI deficit)
C11	Suspected ID	Previous Medical Referral	ADL, Memory, Language	VCI	Extremely Low IQ	No (VCI deficit)
C12	Poor Memory	Caregiver/Parent	Academic, Attention, Behavior	PSI	Borderline IQ	No (PSI deficit)

Note. WISC-IV = Wechsler Intelligence Scale for Children–Fourth Edition. FSIQ = Full Scale Intelligence Quotient; VCI = Verbal Comprehension Index; PRI = Perceptual Reasoning Index; WMI = Working Memory Index; PSI = Processing Speed Index; ID = Intellectual Disability. "Memory Match?" indicates whether caregiver-reported memory complaints corresponded to low WMI as the primary deficit.

The present findings align with regional studies. In India, Batra and Sharma (2022) found that 71% of parental "memory" complaints corresponded to global cognitive delays. In Pakistan, Ghouri and Khan (2020) reported the mean age of first clinical contact for ID was 8.7 years, comparable to 9.45 years observed here. These convergent findings suggest the memory mismatch phenomenon represents a regional pattern across South Asia, driven by shared cultural factors including emphasis on rote memorization, stigma surrounding disability, limited health literacy, and absence of school psychology systems.

4.4 Reflexive thematic analysis identified five themes characterizing the referral and diagnostic pathway.

Table 4. Summary of Qualitative Themes Identified from Clinical Records

Theme	Core Description	Illustrative Clinical Features
Theme 1: The "Memory Mismatch" Phenomenon	Parental use of “poor memory” to describe general learning difficulty	Forgetting lessons, slow learning, inability to keep up
Theme 2: Patterns of Cumulative Academic Failure	Longstanding academic difficulties and repeated class failure	Poor exams, grade repetition, teacher complaints
Theme 3: Barriers to Timely Clinical Intervention	Late referral despite early difficulties	Expectation of improvement with age, delayed assessment
Theme 4: Curricular-Cognitive Incongruity	School expectations exceed cognitive capacity	Mainstream schooling without accommodations
Theme 5: Resilience in Adaptive Functioning	Adaptive and motivational strengths despite limitations	Motivation, emotional attachment, cooperative behavior

Note. Themes were generated through narrative review of clinical notes and identification of recurrent patterns across cases. Themes represent interpretive categories rather than mutually exclusive classifications, and a single case could contribute to multiple themes.

Theme 1 - Memory Mismatch: Caregivers consistently used "poor memory" as a proxy for global intellectual limitations. While 41.7% listed memory concerns, psychometric profiling revealed these were rarely isolated memory deficits but rather broader impairments in Verbal Comprehension and Processing Speed.

Theme 2 - Cumulative Academic Failure: Chronic academic underachievement was pervasive. Half the sample (50%) had experienced grade repetition, remaining in a cycle of academic stagnation without individualized support.

Theme 3 - Delayed Help-Seeking: Mean assessment age was 9.45 years despite difficulties evident from early primary grades. Caregivers reported "wait-and-see" approaches, initially attributing delays to "laziness" or "late blooming."

Theme 4 - Curricular-Cognitive Incongruity: Despite FSIQ below 80, most children were enrolled in mainstream schools or Madrasas without modifications, creating a "ceiling effect" where age-based standards exceeded developmental capacity.

Theme 5 - Adaptive Resilience: Despite cognitive deficits, children demonstrated preserved strengths: cooperative behavior, social engagement, and emotional responsiveness, which often masked disability severity in non-academic settings.

These qualitative findings reveal systemic barriers that perpetuate the memory mismatch phenomenon. The pattern of delayed help-seeking (mean age 9.45 years) is

concerning, as early identification of ID allows for timely educational planning and realistic goal-setting (Walker et al., 2011). Curricular-cognitive incongruity—where children with FSIQ below 70 are held to age-appropriate standards—represents a fundamental failure of educational accommodation. However, the preserved adaptive strengths observed provide a foundation for strengths-based intervention rather than deficit-focused approaches.

In clinical implications, several are emerging. First, clinicians should interpret "poor memory" complaints within a broader cognitive framework rather than assuming isolated memory deficits. Standardized assessment using WISC-IV is essential for distinguishing among global ID, borderline functioning, processing speed deficits, and true working memory impairment. Second, caregiver education should address the distinction between "memory problems" and broader intellectual limitations. Third, educational placement must align with cognitive capacity; children with FSIQ below 70 cannot meet age-appropriate standards without significant modification. Fourth, strengths-based approaches should complement deficit identification. Fifth, systematic screening at school entry using validated tools (Khan et al., 2018) could reduce delayed identification.

Several practical difficulties should be noted also. First, reliance on existing clinical records meant that some variables were inconsistently documented. Second, the Bangla WISC-IV adaptation uses normative data from 1994 (Huq, 1994), predating contemporary population shifts. Third, independent verification of academic difficulties from schools was not available due to the absence of a school psychology system in Bangladesh. Despite these challenges, the clinical records were sufficiently complete to address the study aims.

Future research should include longitudinal studies tracking children from school entry through clinical referral; school-based screening examining teacher-administered screening feasibility; larger multicenter samples for subgroup analyses; intervention studies evaluating whether children with memory mismatch benefit differently from memory-focused interventions versus processing speed accommodations; and caregiver education interventions testing whether brief psychoeducational interventions reduce delayed help-seeking.

5. CONCLUSIONS

Within this clinical sample of Bangladeshi children referred for poor memory and academic difficulties, caregiver-reported memory complaints rarely indicated isolated working memory impairment. Instead, they typically reflected broader intellectual limitations consistent with Intellectual Disability or borderline intellectual functioning, or domain-specific deficits in processing speed and verbal comprehension. Delayed recognition, persistent academic failure with grade repetition, and marked curricular-cognitive incongruity characterized educational trajectories. At the same time, preserved adaptive and social strengths highlight opportunities for strengths-based intervention. These preliminary findings suggest that integrating standardized cognitive assessment with careful interpretation of caregiver narratives is essential for accurate diagnosis, informed educational planning, and improved service delivery in low-resource settings. The "memory mismatch phenomenon" documented here has clinical relevance beyond Bangladesh and merits further investigation in other LMIC contexts.

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