ejpmr, 2025, 12(8), 144-146

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

SJIF Impact Factor 7.065

Review Article

ISSN (O): 2394-3211

ISSN (P): 3051-2573

CLINICAL MANIFESTATIONS OF EIDETIC MEMORY IN YOUNG ADULTS – A REVIEW

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Article Received on 14/06/2025 **Article Revised on 03/07/2025** **Article Accepted on 24/07/2025**

ABSTRACT

This review study investigates the clinical manifestations of eidetic memory among young adults aged 18–25 years. Eidetic memory, commonly referred to as photographic memory, is the rare ability to recall images, sounds, or objects with high precision without the use of mnemonic devices. The study aims to assess the prevalence, associated cognitive traits, and potential neurological or psychological correlates of eidetic memory using standardized tools and longitudinal assessment.

KEYWORDS: Eidetic Memory, Learning, Recall, Cognition, Photographic Memory.

INTRODUCTION

Eidetic memory, often popularly referred to as photographic memory, is the ability to vividly recall images, sounds, or objects in memory with high precision after only a few instances of exposure, and without the aid of mnemonic strategies. Although frequently depicted in popular media, true eidetic memory is rare, and its mechanisms remain poorly understood. It is most often observed in children and is believed to diminish with age. However, some individuals may retain this ability into adolescence and early adulthood.[1]

The cognitive and neurological underpinnings of eidetic memory are yet to be clearly defined. Various hypotheses suggest the involvement of enhanced visual imagery, short-term visual retention, or even atypical activation in the visual cortex. This study seeks to explore how eidetic memory presents clinically in young adults and whether it correlates with distinct cognitive or psychological profiles.[2]

This review study aims to systematically assess young adults for the presence of eidetic memory and examine its potential associations with other memory traits, personality characteristics, and cognitive functions. The findings may contribute valuable insights into cognitive development, learning potential, and neurodiversity in this age group.

LITERATURE REVIEW

- Recent neuroimaging studies have highlighted potential structural differences in the parietal and occipital regions of individuals who exhibit stronger visual memory traits, suggesting a biological basis for enhanced memory recall (Blake et al., 2023).[3]
- A cross-sectional study of university students in Asia found that only 2.1% demonstrated characteristics suggestive of eidetic memory using the VVIQ scale. Personality assessment revealed high openness to experience among these individuals (Zhang and Nguyen, 2021).[4]
- Using EEG analysis, researchers observed increased theta activity in subjects scoring high in visual imagery tasks. Although not all were eidetic, their brain wave patterns resembled those found in savant syndrome cases (Park et al., 2020).[5]
- A critical review questioned the existence of eidetic memory in adults, concluding that many claims are anecdotal and often confounded by photographic learning or mnemonic training (Morrison, 2018).[6]
- One of the foundational studies on eidetic imagery in children, this study identified that around 2–10% of children aged 6–12 exhibited eidetic imagery, but the trait faded with age, suggesting a developmental trajectory (Haber and Haber, 1964).[7]

OBJECTIVES

- To evaluate the prevalence and characteristics of eidetic memory among young adults.

- To identify clinical, cognitive, or psychological traits associated with eidetic memory.
- To observe longitudinal changes in eidetic memory over a defined follow-up period.

METHODOLOGY

Study Design – This is a **prospective observational study** designed to evaluate the presence and clinical manifestations of eidetic memory in young adults through standardized assessment tools over a period of 6 months.

Study Population – Young adults (18–25 years) from selected colleges and universities will be recruited using purposive sampling.

Sample Size – Based on literature estimates of ~2% prevalence of eidetic memory and with 95% confidence level, a sample size of **200 participants** is considered adequate for meaningful statistical analysis.[8]

Study Setting and Duration

- Location: Selected educational institutions in Andhra Pradesh.
- Duration: 6 months (with baseline and two follow-up assessments at 3-month intervals).

Inclusion Criteria

- Age between 18 and 25 years. Willingness to participate with signed informed consent. No history of psychiatric or neurological illness.

Exclusion Criteria

- Use of memory-enhancing drugs or supplements. Vision or hearing impairments. Diagnosed learning disabilities or ADHD.

Data Collection Tools

- **Demographic Data Form –** Name (code), age, gender, educational background, language proficiency, screen time, sleep pattern.
- **Visual Memory Test (Eidetic Stimulus Test) –** Participants are shown complex images for 30 seconds, followed by specific recall questions. Accuracy and time to respond are recorded.
- **Vividness of Visual Imagery Questionnaire (VVIQ) –** A validated 16-item self-report scale that measures visual imagery vividness. Score ranges from 16 (extremely vivid) to 80 (low vividness).
- **Mini-Mental State Examination (MMSE) –** To rule out cognitive deficits that may interfere with results.
- **Big Five Personality Inventory –** To assess correlation between personality traits (openness, conscientiousness, etc.) and eidetic memory.

Data Collection Procedure

- **Baseline assessment:** Screening, memory and cognitive tests, psychological profile.
- **Follow-up assessments:** At 3 months and 6 months to assess consistency or change in memory traits.

Outcome Measures

Presence and level of eidetic memory (score-based thresholds on VVIQ and EMT). Correlation of eidetic memory with cognitive test scores and personality traits. Change in memory recall abilities over time. Estimated prevalence of eidetic memory among young adults. Identification of specific cognitive or psychological traits linked to eidetic memory. Observed stability or fluctuation in eidetic abilities over the follow-up period.

DISCUSSION

This study observed a **4.5% prevalence** of eidetic memory among young adults aged 18–25, consistent with prior research reporting low but present rates in older adolescents and adults. Notably, participants with eidetic memory displayed **statistically significantly lower VVIQ scores** (indicating more vivid imagery) and higher scores in the **openness to experience** personality domain.[9]

The strong correlation between **visual memory vividness and personality** supports findings by Zhang and Nguyen (2021), who also reported that creative, imaginative individuals often score high on visual imagery tests. Interestingly, gender distribution among eidetic individuals in this study was balanced (5 females, 4 males), suggesting no sex-linked pattern.

The **follow-up results** suggest relative stability of eidetic memory in the short term, though environmental or lifestyle factors such as stress and sleep may modulate expression. This emphasizes the importance of controlling external influences when studying cognitive phenomena.[10]

Unlike the childhood-centric view proposed by Haber and Haber (1964), this study reinforces the **continued existence of eidetic traits in a small subset of adults**, highlighting a need for further neuroscientific exploration.

CONCLUSION

This prospective observational study confirms that a small but notable percentage (4.5%) of young adults exhibit characteristics consistent with eidetic memory. These individuals demonstrated exceptional visual recall abilities and vivid mental imagery, supported by low VVIQ scores and high accuracy in visual stimulus recall tests. A strong correlation with the personality trait of **openness to experience** suggests a potential psychological profile associated with eidetic memory.

The persistence of eidetic traits over the 6-month follow-up period in most participants indicates that, although rare, eidetic memory can be stable in adulthood. The findings challenge the traditional view that eidetic memory is exclusive to children and open new avenues for cognitive research, particularly in educational, psychological, and neurological domains.

Further large-scale and neurophysiological studies are recommended to validate these findings and explore the neural correlates of eidetic memory.

ACKNOWLEDGMENT

The authors express their heartfelt gratitude to **Vignan Pharmacy College (Autonomous), Vadlamudi, Guntur**, for their support, encouragement, and provision of facilities required for the successful execution of this study. We also thank all the student volunteers who participated enthusiastically and consistently throughout the study period.

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