

Neurolinguistic Heterogeneity Of Primary Progressive Aphasia In Arabic

ID #1749



Taiebine Mohamed 1 & El Alaoui Faris Mustapha 2
1*Euro-Mediterranean University of Fes, Morocco
2 Alzheimer’s center, Faculty of Medicine and Pharmacy, University Mohammed V, Rabat, Morocco.

INTRODUCTION

Primary Progressive Aphasia (PPA), a neurodegenerative syndrome characterized by isolated, progressive language decline, exhibits four main clinical variants: non-fluent/agrammatic (nfvPPA), semantic (svPPA), logopenic (lvPPA), and mixed (mvPPA). Research on PPA in Arabic-speaking patients is limited. This study presents a case series that characterizes the clinical and linguistic diversity of PPA in this underrepresented language.

METHODS

We report a series of patients diagnosed with PPA (n=10) according to the current consensus criteria, spanning different variants. Each participant underwent a battery of neuropsychological and neurolinguistic assessments that were adapted for Arabic. Linguistic analyses focused on characterizing motor speech, grammaticality, word retrieval, and comprehension, paying close attention to domains that may be influenced by Arabic linguistic features.

RESULTS

Analysis of the case series revealed the presence of all three canonical variants (nfvPPA, svPPA, and lvPPA), and in some instances, atypical or mixed phenotypes were observed. Specific patterns of morphological error in nfvPPA and distinct presentations of dysnomia and semantic association deficits in svPPA and lvPPA were observed. Given the distinct linguistic structure of Arabic, which impacts morphology and syntax, the presentation of nfPPA revealed a unique neurolinguistic feature in terms of the dissociation between word patterns and roots compared to Indo-European languages.

CONCLUSION

This case series provides empirical evidence of the neurolinguistic expression of PPA in Arabic speakers. The findings underscore the importance of linguistically sensitive assessment protocols and suggest that the morpho-syntactic and lexical complexities of Arabic may shape the typical linguistic manifestations of PPA variants. This study contributes to expanding the global understanding of PPA's diverse clinical trajectories.

Diagnostic Profiles of Primary Progressive Aphasia (PPA) Variants in Arabic-Speaking Cohort: Comprehensive Linguistic and Neuropsychological Assessment.
(Note: Core deficits adapted for Arabic linguistic features are highlighted with patterns.)

VARIANT	LINGUISTIC DOMAINS					NEUROPSYCHOLOGICAL & COGNITIVE DOMAINS			
	Motor Speech	Word Retrieval (Dysnomia)	Grammar	Semantics (Comprehension)	Arabic-Specific Features	Working Memory	Executive Function	Episodic Memory	Associative Knowledge (Semantic)
nfvPPA					Word Pattern vs. Root Dissociation ^a				
svPPA									
lvPPA									
Atypical/ Mixed PPA					nfvPPA Arabic Feature: Pattern-Root Dissociation (e.g., broken plurals)				

Severe Deficit

Moderate Deficit

Relative Sparing

Deficit showing Arabic-Specific Feature

Complex/Mixed features (e.g., for Atypical PPA)

a) Represents unique dissociation between word patterns and roots compared to Indo-European languages. New domain name changes (e.g., 'Word Retrieval' includes 'Picture Naming', 'Grammar' includes 'Sentence Repetition')

