

Assessment Of Executive Functions And Naming In Arabic-speaking Patients With Alzheimer’S Disease:

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ID #1793



INTRODUCTION

Alzheimer's disease (AD) is characterized by a typical amnestic profile; however, as the disease progresses, non-amnestic deficits become apparent, including dysfunction in executive functions and language. This study analyzed the neuropsychological profiles of patients with AD, focusing on executive functions and naming.

METHODS

The study sample comprised 14 patients (four with mild AD and ten with moderate AD). They underwent a comprehensive neuropsychological assessment in Arabic, with a focus on tests exploring executive functions (MoCA and MMSE subtests, Clock Drawing Test, TMT part A/B and digit span), and naming (MoCA subtests, naming battery with DO 80 and verbal fluency). Performance across different subtests was compared to distinguish the cognitive profiles.

RESULTS

Patients showed a heterogeneous pattern of executive deficits, ranging from significant to mild-to-moderate deficits. Patients with moderate AD exhibited greater executive dysfunction. The most challenging executive tasks included working memory tasks which have been most deteriorated and the Trail Making Test part B (TMTb). Furthermore, deficits were evident in the qualitative measures of verbal fluency (e.g., clusters and switching strategies), revealing executive dysfunction. In contrast, naming performance was found to be partially successful on the MoCA and nearly intact on the MMSE in the majority of patients. Furthemore, naming battery assessment showed a clear pattern of dysnomia in mild-to-moderate group of patients with AD while severe impairments in executive functions were associated with retrieval in semantic memory tasks . While specific executive and naming tasks were clinically reliable, the linguistic subtests of the MMSE may not be sensitive enough, leading to a possible ceiling effect in naming.(Table 1 & 2)

CONCLUSION

The findings confirm the presence of varying degrees of executive dysfunction in patients with AD, particularly affecting naming, working memory, complex and demanding tasks. Overall, this study highlights the complexity and heterogeneity of non-amnestic cognitive deficits in AD.

Patients	Target word	Translation into English	Phonetic transcription of the target word	The patient's response	Translation into English	Phonetic transcription of the response	Type of errors
AR	مطرقة	Hammer	/mitraqa/	فَس +	Axe	/fa : s/	Semantic
KM	قنفود	Hedgehog	/qanfud/	فَرْنَفَل +	Clove	/qrunful/	Non-semantic
KM	أنّلس	Pineapple	/ananas/	إِخْصَة +	Pear	/ iğğasa/	Semantic
KM	دوّاز	Funnel	/dawwaAz/	نُور +	NA	/bur/	Phonological
FS	مطرقة	Hammer	/mitraqa/	طَرَّاقَة +	NA	/tarraqa/	Phonological
ZS	أنّلس	Pineapple	/ananas/	كَنْكَنْ - كَنْطَنْع	To be eaten	/ketqatta/ /ketkaal/	Semantic
ZS	مطرقة	Hammer	/mitraqa/	كَيَحْفَرُو بِنَا	To dig	/kayħafru biha/	Semantic
ZS	دوّاز	Funnel	/dawwaAz/	كَسْ	Cup	/kaas/	Non-semantic/visual
AF	دوّاز	Funnel	/dawwaAz/	كَيَهْرُوبِيه لَمَّا	To guide water	/kayħazzu biħ lma/	Semantic / circumlocutions

Table 1 Results of errors produced in the MLSE naming subtest

PATIENTS / MLSE SUBTESTS	AR	AL	AF	ER	KM	FS	ZS	BM	RJ	HM	MM	MO	MMH	EE	AC	AM	AB
Motor speech	30	30	30	30	30	30	29	30	30	27	30	30	30	29	30	30	30
Semantics	29	28	24	24	29	22	25	20	24	25	27	27	25	21	29	26	18
Phonology	28	27	17	24	26	22	22	21	22	23	28	27	22	24	23	30	27
Syntax	7	5	3	1	0	0	1	1	2	0	3	3	5	2	1	2	3
Global score	94	90	77	79	84	74	76	70	88	70	88	87	82	76	82	88	75

Table 2 MLSE subdomains in patients with AD (n=14) vs PPA (n=3 in green)