BỆNH VIỆN ĐẠI HỌC Y DƯỢC TPHCM
UNIVERSITY MEDICAL CENTER HCMC
Thấu hiểu nỗi đau - niềm tin của bạn

Efficacy of Paper-based Cognitive Training in Vietnamese Patients with Early Alzheimer's Disease

On behalf of research team

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Background

A multimodal approach to treatment of AD is crucial through combining pharmacologic and nonpharmacologic interventions.

+ Cognitive stimulation: 3 sessions/week (UMC)
+ Cognitive training
+ Cognitive rehabilitation

Background

- Cognitive training is a guided set of standardized tasks that replicate ***specific cognitive functions***: memory, calculation, executive function, visual, problem solving
- Existing literature demonstrated that cognitive training is more effective as compared to cognitive stimulation and cognitive rehabilitation in patients with ***mild cognitive impairment (MCI) and early stage AD.***
- Cognitive training stands out as a feasible method to ***ameliorate, or at least maintain***, participant cognitive functioning and this benefit is projected to be generalized in different contexts

García-Casal J. A. et al. (2017), "Computer-based cognitive interventions for people living with dementia: a systematic literature review and meta-analysis", *Aging Ment Health*. **21** (5), pp. 454-467.
Nousia A. et al. (2018), "Beneficial Effect of Multidomain Cognitive Training on the Neuropsychological Performance of Patients with Early-Stage Alzheimer's Disease", *Neural Plasticity*. **2018**, pp. 2845176.
Bahar-Fuchs A. et al. (2019), "Cognitive training for people with mild to moderate dementia", *Cochrane Database Syst Rev*. **3** (3), pp. Cd013069.

Background

- Neuroplasticity will be enhanced and deliver a restorative effect. This is considered as the neuroscientific foundation of this method.
- There are three ways to administer cognitive training: computer-based, web-based and paper-based.

Smith G. E. et al. (2009), "A cognitive training program based on principles of brain plasticity: results from the Improvement in Memory with Plasticity-based Adaptive Cognitive Training (IMPACT) study", *J Am Geriatr Soc.* **57** (4), pp. 594-603.
Kramer A. F. et al. (2003), "Cognitive Plasticity and Aging", *Psychology of Learning and Motivation*, Academic Press, pp. 267-302.

Design methodology,
CT content:
- 3 levels of difficulty
- 8 books/level

Obtain ethics approval,
Recruit participants,
Explain study (purpose, randomization, right to withdraw),
informed consents

Collect baseline data

Permuted block randomization (block of two-six)

Collect data,
Data anlysis,
Deliver CT to control group

Instruct patients and caregivers to practice at home,
Research team contact them every 2 weeks to provide support & monitor progress

PHASE I	PHASE II	PHASE III
Easy	Intermediate	Difficult
Week 1-4	Week 5-8	Week 9-12

Patients receive 8 books of correspondent level,
are required to work on 2 books/week,
marked as complete if they finish 80% of workload,
only then will they move on to the next phase.

* Receive standard care (medication)

** Receive CT & standard care (medication)

Cognitive training content

Exercise	Cognitive function	Tasks
1	Calculation	Calculation
2	Visual agnosia	Visual identification, Object matching
3	Executive functions	Planning, Organization, Usage of appliances
4	Attention and episodic memory	Retelling stories
5	Attention and processing speed	Spot the differences
6	Executive function	Problem- solving

Exercise	Cognitive function	Tasks	Descriptions
1	Calculation	Calculation	Perform basic math problems (addition, subtraction, multiplication and division)

Câu 1:

20	+	20	=
35	+	21	=
80	-	30	=
50	-	30	=

Câu 2:

12	+	35	=
43	+	24	=
70	-	30	=
40	-	10	=

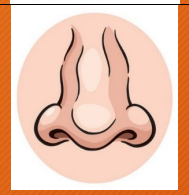
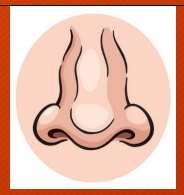
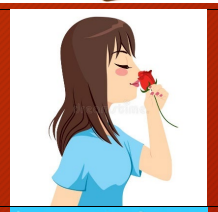
Câu 3:

13	+	35	=
46	+	23	=
80	-	30	=
90	-	10	=

Câu 4:

24	+	45	=
36	+	43	=
50	-	20	=
80	-	30	=

Visual agnosia	Visual identification, Object matching	- Pictures and words matching - Picture and picture matching

	NOSE		
	FISHES		
	TABLE TENNIS		
	A MOP		
	AN AXE		

3	Executive functions	Planning, Organization, Usage of appliances	- Organize steps of performing a task based on available information (words and sentences) - Organize steps of performing a task based on available information (pictures)

EXERCISE 3: EXECUTIVE FUNCTIONS
ARRANGE THE FOLLOWING STEPS IN THE CORRECT ORDER
STEPS TO MAKE LEMONAED:

ORDER	STEPS
	ADD SUGAR
	JUICE THE LIMES
	CUT THE LIMES
	ADD WATER

2. STEPS TO FORM FAMILY:

ORDER	STEPS
	
	
	

4	Attention and episodic memory	Retelling stories	Read a story, then remember it to answer relevant questions, then summarize the whole story.

EXERCISE 4: ATTENTION

READ AND REMEMBER THE STORY:

LAN FAMILY

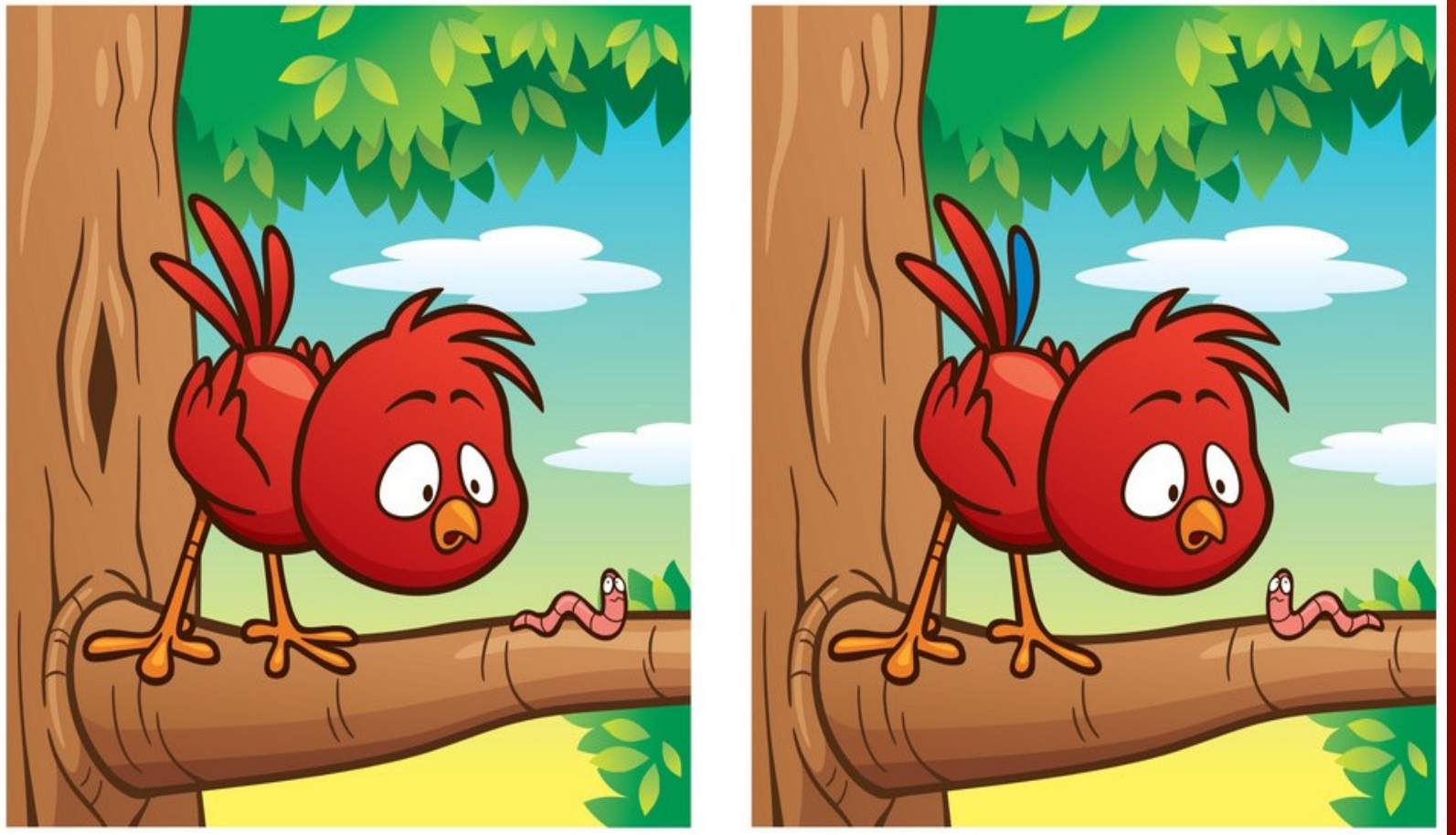
There are five people in Lan's family: her parents, Lan and her twin younger sisters. Lan was studious so she got lots of awards and was able to become a doctor just like her family wanted. Her twin sisters become a dentist and a banker. Lan and her sisters love each other and share the same passion for charity. Therefore, in every weekend, she and the whole family goes to families in need to help them. Lan with her medical career was able to convince other doctors to participate in charity examination trip with her family. Her family work in charity field is constant because it has gained support from many sponsors.

1. **Answer the following questions:**
2. How many people are there in Lan's family?
3. What are Lan and her sisters' occupation?
4. What is Lan's family passion?
5. What Lan and her coworker do?
6. Why is her family work in charity constant?

5	Attention and processing speed	Spot the differences	Identify the differences between two pictures

EXERCISE 5: SPOT THE DIFFERENCE

Find 5 different spots in these 2 pictures:



6	Executive function	Problem- solving	Require patients to solve a particular issue

EXERCISE 6: PROBLEM SOLVING

If you're hosting a party and you find out that there is a stranger comes without being in the invited list, what would you do?

- ……

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Proposed project timeline

- Proposal submission and review: 15/1/2021 - 3/2021
- Ethics approval: 4/2021
- Participant recruitment and data collection: 6/2021-10/2024
- Data analysis and manuscript writing: 10-12/2024

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Thank you

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